

Original User Manual

Series Touch Industrial PC



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Instruction Manual: Touch Industrial PC

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1 Identification

Target group

This document is not intended for end customers! Necessary safety instructions for the end customer must be passed on by the machine builder or system provider and adopted in the respective national language.

Intended use

The devices described in this documentation are intended to enable the user to control, operate, observe, drive and visualise certain processes in industry or industrial contexts / environments. The devices must be used within the conditions and limits described in this documentation.

Improper use

The devices have not been designed and manufactured for use in applications where serious danger to life and health may occur. The equipment must not be used for the following purposes:

- Control of nuclear reactions in nuclear power plants
- Control systems of weapons
- Automatic control of aircraft air traffic control and mass transport systems
- Medical equipment for life support

Technical changes

Christ Electronic Systems GmbH reserves the right to change the information, designs and technical data contained in this documentation without prior notice.

History

The following editions of the manual have already been published:


Version	Comment
03/2025 Rev. 00	First edition

Table 1: History

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Design of safety instructions

The general structure of the safety instructions is shown below:


NOTICE	
	<p>Type of hazard and source of hazard</p> <p>Consequences in the event of non-compliance with the guideline</p> <ul style="list-style-type: none"> ➤ Measures to avoid hazards

The meaning of the colours of the safety instructions is shown below:

⚠ DANGER	
	<p>Indicates an imminent danger</p> <p>Failure to follow the instructions may result in death or serious injury.</p>

⚠ WARNING	
	<p>Indicates a dangerous situation</p> <p>Failure to follow the instructions may result in serious injury.</p>

⚠ CAUTION	
	<p>Indicates a possible dangerous situation</p> <p>Failure to follow the instruction may result in injury.</p>

NOTICE	
	<p>Indicates user tips and useful information</p> <p>Important information to avoid malfunctions.</p>

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2 Product description

Every industry has its own requirements for machine and system operation. To meet all of them, there are different housing variants with industry-specific features.

All touch panels are equipped with multitouch technology in various inch sizes as standard. This means that gesture control, as used on tablets or smart phones, is no problem. This makes machine operation particularly user-friendly.

Christ also offers the greatest possible flexibility in terms of operating systems with Windows 10 or Linux distributions. The sophisticated device design enables use in large temperature ranges completely without fans. This enables versatile use without any maintenance effort.

Industrial PCs with their robust housing design are ideal for use in demanding industrial environments. Due to optimal touch configuration, smooth operation is possible even with gloves. Even with residues on the display such as moisture, dirt or oils, the touch panel can be operated without errors. The anodized front frame protects the panel from mechanical influences.

The extension of the protection class is particularly easy by using a rear cover extension. In this way, protection class IP65 is achieved. The Industrial PCs can be mounted on support arms as well as installed in housing cutouts.

The hygienic version of the touch panel has a stainless steel housing and is completely IP69 protected. It is particularly suitable for use in hygienically demanding environments such as the pharmaceutical or food industry. Glove operation is also possible here with the help of an adapted touch.

Another aspect is the scalability of the computing power. Particularly powerful panel PCs are equipped with Intel® Atom®, Celeron™ or Core™ i3, i5 or i7 processors and therefore offer different performance levels for different applications.

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2.1 System Overview

Argon

CPU	Intel® Atom® x6211E Dual Core 1.3 / 3.0 GHz	Intel® Atom® x6425E Quad Core 2.0 / 3.0 GHz
Graphic	Intel® UHD Graphics 350 MHz	Intel® UHD Graphics 500 MHz
Memory	1 x DDR4 slot, max. 32 GB	
BIOS	AMI Optio 5 BIOS	
Interfaces	2 x USB 3.2 Gen 1 Port (Type A) 2 x 2.5 GBit Ethernet (RJ45) 1 x RS-232 / RS-422 / RS-485 (Bios setting) (RJ50) 1 x Display Port 1.4	

Table 2: System overview Argon

Titanium

CPU	Intel® Celeron™ 6305E 1.8 GHz	Intel® Core™ i3-1115G4E 2.2 / 3.9 GHz	Intel® Core™ i5-1145G7E 1.5 / 4.1 GHz	Intel® Core™ i7-1185G7E 1.8 / 4.4 GHz
Graphic	Intel® UHD Graphics 1.25 GHz		Intel® Iris® Xe 1,3 GHz	
Memory	2 x DDR4 slot, in summary max. 64 GB			
BIOS	AMI Optio 5 BIOS			
Schnittstellen	4 x USB: 2 x USB 2.0 Port (Type A); 2 x USB 3.2 Gen1 Port (Type A) 3 x 2.5 GBit Ethernet (RJ45) 1 x RS-232 / RS-422 / RS-485 (Bios setting) (Sub-D) 1 x Display Port 1.4			

Table 3: System overview Titanium

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2.2 Housing Variant VESA

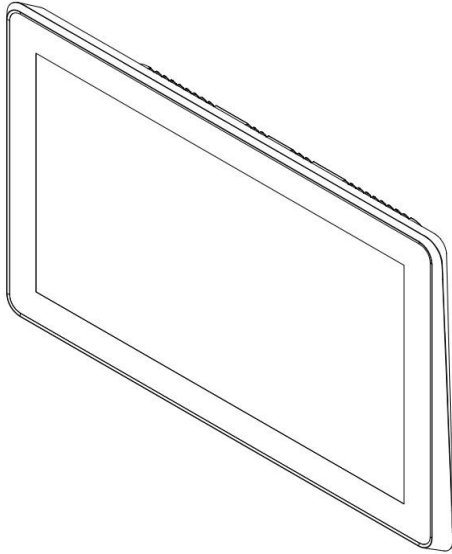


Illustration 1: VESA front

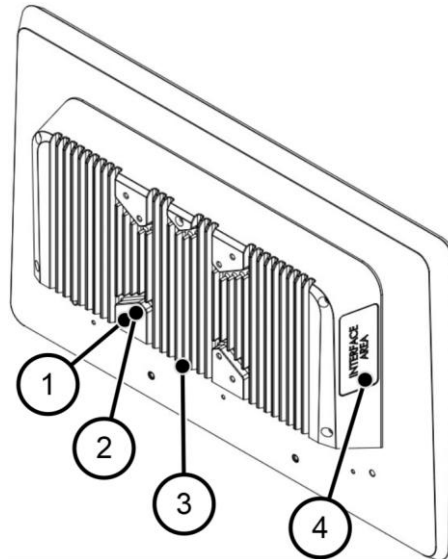


Illustration 2: VESA rear

1	VESA MIS-D, 100
2	VESA MIS-D, 75
3	Interface area
4	Interface area side

Table 4: VESA front and VESA rear

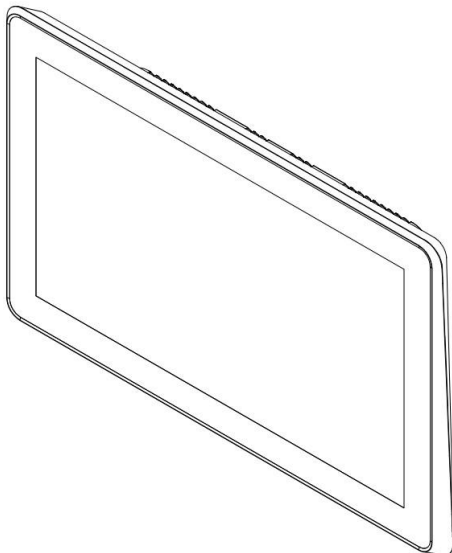


Illustration 3: VESA IP65 front

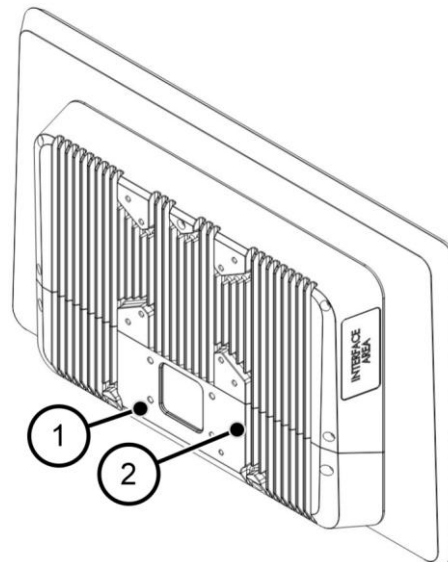


Illustration 4: VESA IP65 rear

1	VESA MIS-D, 75
2	IP cover

Table 5: VESA IP65 front and VESA IP65 rear

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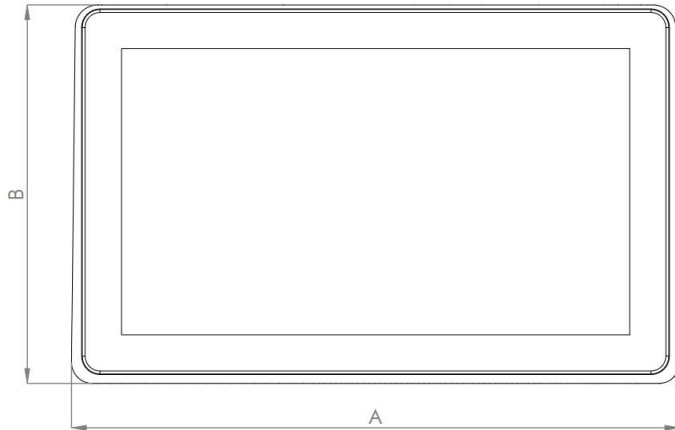
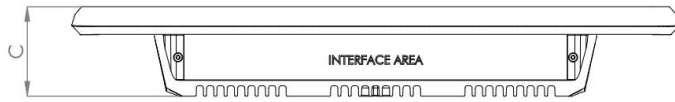


Illustration 5: Dimensions VESA

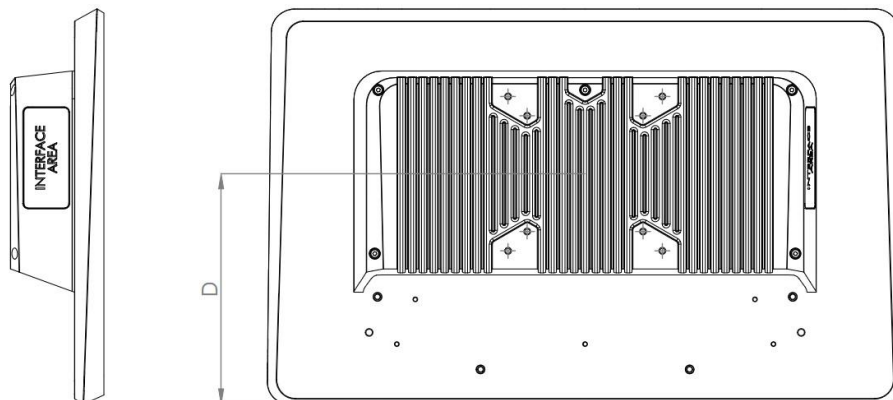


Illustration 6: Dimensions VESA rear

Dimensions are given in millimeters.

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Size	A	B	C	D
7"	211	144	55	75
10.1"	276	190	58	105
10.4"	274	215	58	130
12.1"	325	222	58	137
13.3"	357	224	61	148
15"	369	288	61	149
15.6"	412	256	61	149
18.5"	477	293	64	149
21.5"	548	334	64	149
24"	604	367	64	150

Table 6: Dimensions VESA

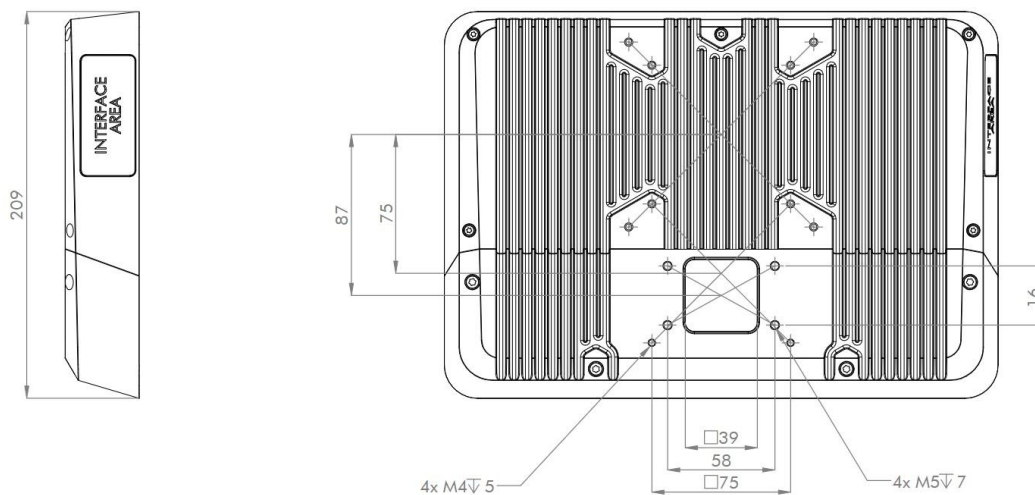


Illustration 7: VESA IP65 cover

The cover for IP65 protection is available for sizes 13.3 to 24.

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2.3 Housing Variant VESA Automation

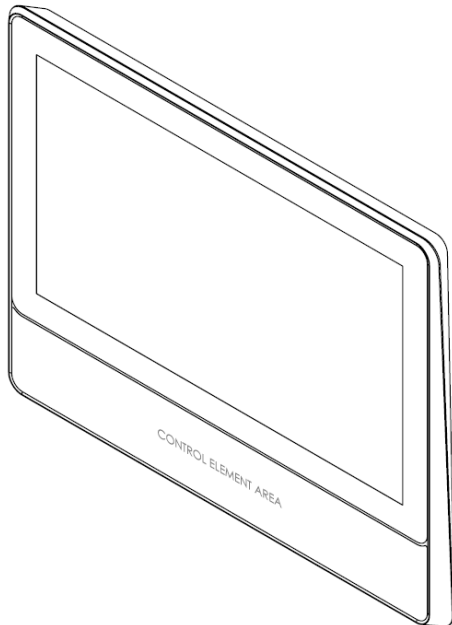


Illustration 8: VESA Automation front

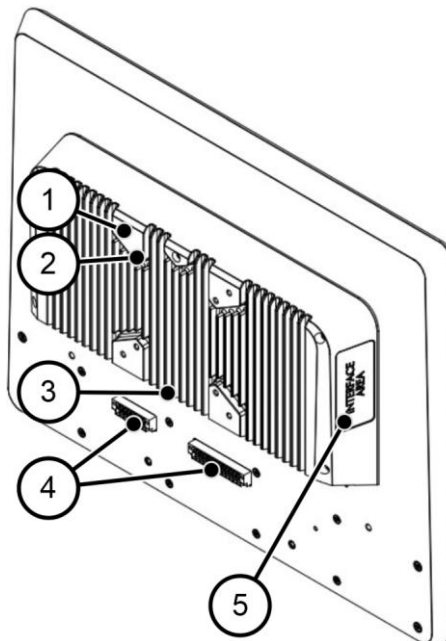


Illustration 9: VESA Automation rear

1	VESA MIS-D, 100
2	VESA MIS-D, 75
3	Interface area
4	Extension connector
5	Interface area side

Table 7: VESA Automation front and VESA Automation rear

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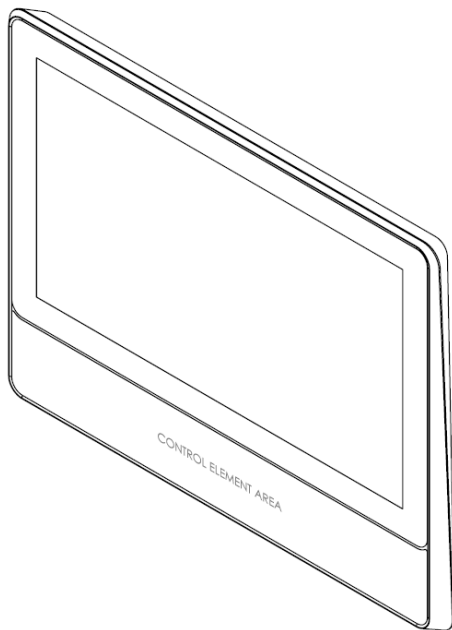


Illustration 10: VESA Automation IP65 front

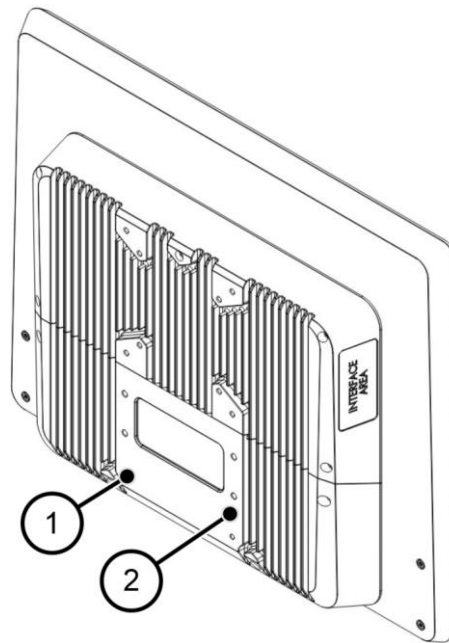


Illustration 11: VESA Automation IP65 rear

1	VESA MIS-D, 100
2	IP cover

Table 8: VESA Automation IP65 front and VESA Automation IP65 rear

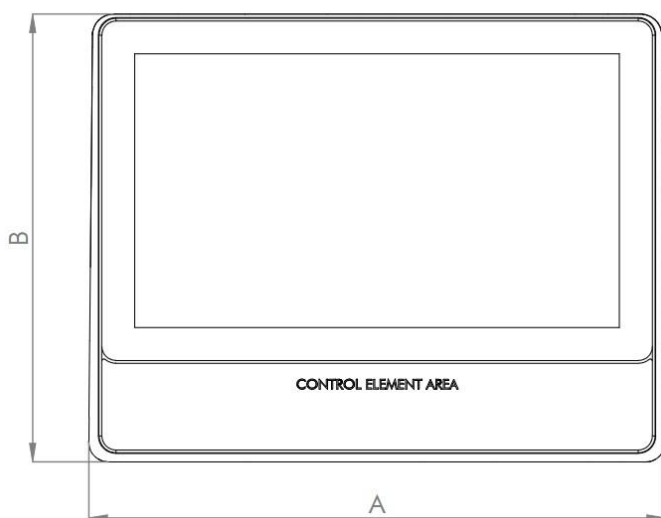
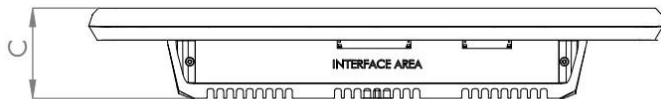


Illustration 12: Dimensions VESA Automation

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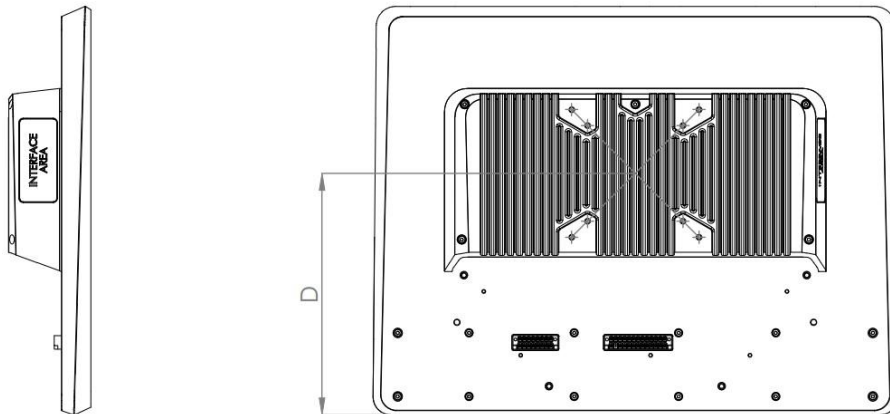


Illustration 13: Dimensions VESA Automation rear

Dimensions are given in millimeters.

Size	A	B	C	D
13.3"	357	288	65	189
15.6"	412	320	65	189
18.5"	477	357	65	189
21.5"	548	398	65	189
24"	604	431	65	189

Table 9: Dimensions VESA Automation

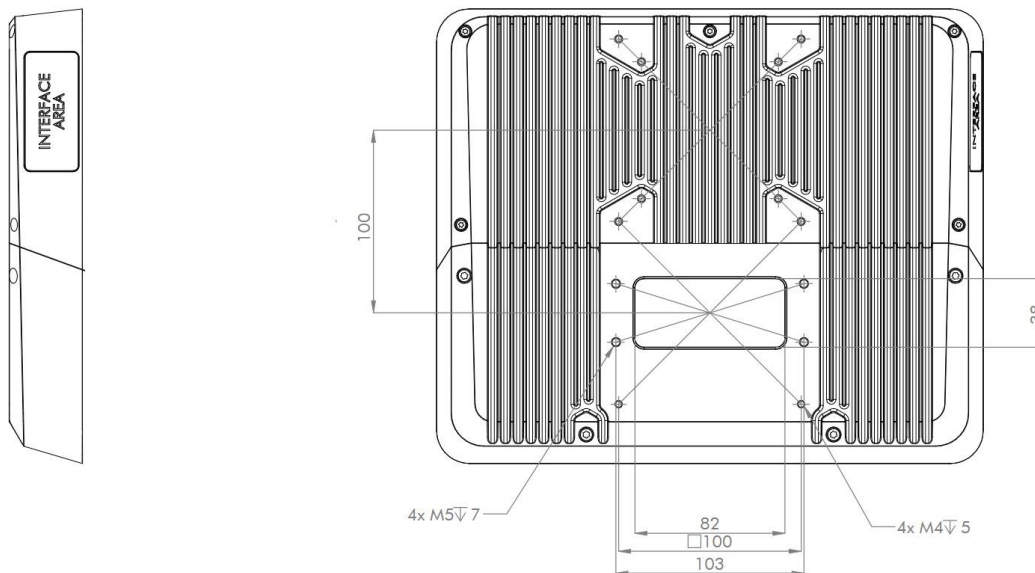


Illustration 14: VESA Automation IP65 cover

The cover for IP65 protection is available for sizes 13.3 to 24.

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2.3.1 Operating elements

We offer the following components for installation on the front of the unit. Pushbuttons, selector switch, key lock switch and emergency stop are purchased from the manufacturer Georg Schlegel GmbH & Co. KG.

Pushbuttons



Series	SHORTRON® base-plate mounting
Degree of protection	IP65
Travel	2.3 mm
Illumination	Yes, white LED
Labeling Option	Yes ¹
Front Bezel	Silver-Coloured
Operating Temperature	-25 °C ... 70 °C
Contact Elements	max. 2 x NC / 2 x NO / 1 x NC + 1 x NO
Nameplate	Transparent: Blue, Yellow, Green, Transparent, Red, White Non-transparent: Black

Key Lock Switch



Series	SHORTRON® base-plate mounting
Degree of protection	IP65
Switchin function	Latching
Illumination	No
Labeling Option	No
Front Bezel	Silver-Coloured
Operating Temperature	-25 °C ... 70 °C
Contact Elements	max. 2 x NC / 2 x NO / 1 x NC + 1 x NO

¹ Possible designation plates are provided by your contact person

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Selector Switch



Series	SHORTRON® base-plate mounting
Degree of protection	IP65
Switching function	Latching / non latching
Illumination	Yes, white LED
Labeling Option	No
Front Bezel	Silver-Coloured
Operating temperature	-25 °C ... 70 °C
Contact Elements	max. 2 x NC / 2 x NO / 1 x NC + 1 x NO

Emergency Stop



Series	SHORTRON®
Type	FRVKOOIP
Degree of protection	IP65
Illumination	No
Labelling Option	No
Front Bezel	Yellow
Operating Temperature	-25°C ... 70°C
Contact Elements	2 x NC + 1 x NO
Switching Position Indicator	Yes
Release	Twist right or left
Anti-lock Collar	Yes

USB



Degree of protection	IP65
USB	USB 2.0
Illumination	No
Labelling Option	No
Front Bezel	Black
Operating Temperature	-25°C ... 80°C

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2.3.2 RFID

Manufacturer	ELATEC GmbH
Type	TWN4 MULTITECH NANO M
Degree of protection	IP65
Frequencies	125 kHz / 13.56 MHz
Operating temperature	-25°C ... 80°C
Transponder	<p>125 KHz: AWID, Cardax¹, CASI-RUSCO, Deister¹, EM4100, 4102, 4200², EM4050, 4150, 4450, 4550, EM4305³, FDX-B⁴, EM4105⁴, UltraProx⁴, HITAG 1⁵, HITAG 2⁵, HITAG S⁵, ICT⁶, IDTECK, Isonas, Keri, Miro, Nedap¹, PAC⁶, Pyramid, Q5, T5557, T5567, T5577, TIRIS/HDX⁴, TITAN (EM4050), UNIQUE, ZODIAC</p> <p>13.56 MHz / ISO14443A: LEGIC Advant⁷, MIFARE Classic EV1⁸, MIFARE Classic, MIFARE Mini, MIFARE DESFire EV1, MIFARE DESFire EV2⁹, MIFARE DESFire Light⁶, MIFARE Plus S, X, MIFARE Pro X¹⁰, MIFARE Smart MX¹⁰, MIFARE Ultralight, MIFARE Ultralight C, MIFARE Ultralight EV1⁸, NTAG2xx, SLE44R35¹⁰, SLE66Rxx (my-d move)¹⁰, Topaz</p> <p>13.56 MHz / ISO18092 ECMA-340: NFC Forum Tag 1-5, NFC Peer-to-Peer, Sony FeliCa¹¹, NFC Active and passive communication mode</p> <p>13.56 MHz / ISO14443B: Calypso¹⁰, Calypso Innovatron protocol¹⁰, CEPAS¹⁰, HID iCLASS⁷, Moneo¹⁰, Pico Pass¹², SRI4K, SRIX4K, SRI512, SRT512</p> <p>13.56 MHz / ISO15693: EM4x33¹⁰, EM4x35¹⁰, HID iCLASS⁷, HID iCLASS SE/SR⁷, ICODE SLI, LEGIC Advant⁷, M24LR16/64, MB89R118/119, SRF55Vxx (my-d vicinity)¹⁰, Tag-it, PicoPass¹²</p>

¹ hash value only

² only emulation of 4100, 4102

³ from FW V4.05

⁴ 134.2 kHz only

⁵ without encryption

⁶ on request

⁷ UID only

⁸ read/write enhanced security features on request

⁹ EV2/EV3 supported as part of the EV1 downward compatibility

¹⁰ read/write in direct chip command mode

¹¹ UID + read/write public area

¹² UID only, read/write on request

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Manufacturer	ELATEC GmbH
Type	TWN4 MULTITECH NANO LEGIC 42 M
Degree of protection	IP65
Frequencies	125 kHz / 13.56 MHz
Operating temperature	-25°C ... 80°C
Transponder	<p>125 KHz: AWID, Cardax¹, CASI-RUSCO, Deister¹, EM4100, EM4102, EM4200², EM4050, EM4150, EM4450, EM4550, EM4305, HITAG 1³, HITAG 2³, HITAG S³, ICT⁴, IDTECK, ISONAS, Keri, Miro, Nedap¹, Pyramid, Q5, T5557, T5567, T5577, TITAN (EM4050), UNIQUE, ZODIAC</p> <p>13,56 MHz / ISO14443A: LEGIC Advant, MIFARE Classic EV1⁵, MIFARE Classic, MIFARE Mini, MIFARE DESFire EV1, MIFARE DESFire EV2⁶, MIFARE DESFire EV3⁶, MIFARE DESFire Light⁴, MIFARE Plus S/X, MIFARE Smart MX⁷, MIFARE Ultralight, MIFARE Ultralight C, MIFARE Ultralight EV1⁵, NTAG2xx, SLE44R35⁷, SLE66Rxx (my-d move)⁷, HID iCLASS DESFire⁸, HID iCLASS MIFARE Classic⁸, HID iCLASS SEOS⁸</p> <p>13,56 MHz / ISO18092 ECMA-340: NFC Forum Tag 1-5⁹, Sony FeliCa¹⁰</p> <p>13,56 MHz / ISO14443B: Calypso⁷, CEPAS⁷, HID iCLASS⁸, Pico Pass⁸</p> <p>13,56 MHz / ISO15693: EM4x33⁷, EM4x35⁷, HID iCLASS⁸, HID iCLASS SE/SR/Elite⁸, ICODE SLI, LEGIC Advant, M24LR16/64, SRF55Vxx (my-d vicinity)⁷, Tag-it, PicoPass⁸</p> <p>LEGIC Prime: LEGIC Prime</p>

¹ nur Hashwert

² nur Emulation von 4100, 4102

³ ohne Verschlüsselung

⁴ auf Anfrage

⁵ lesen/schreiben erweiterte Sicherheitsmerkmale auf Anfrage

⁶ als Teil der EV1-Abwärtskompatibilität unterstützt

⁷ lesen/schreiben im direkten Chip-Befehlsmodus

⁸ nur UID

⁹ NFC Forum Tag 1 nicht unterstützt

¹⁰ UID + lesen/schreiben öffentlicher Bereich

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2.3.3 Fieldbus

Profinet

The GSD file for project planning is provided by Christ. This describes the input/output image of the Christ device and must be embedded in the configuration software. The input/output image or the variables can then be used in the control programme.

The IP address is assigned to the IO device (Profinet module installed in the Christ device) by the PROFINET IO controller (PLC controller of the customer).

In the delivery state, the station name of the IO device is not set. This must be assigned by the IO controller according to the Profinet specification so that communication can take place.

For more information on Profinet, visit the homepage <https://www.profibus.com/>.

EtherCAT

The XML file for project planning is provided by Christ. This describes the input/output image of the Christ device and must be embedded in the configuration software. The input/output image or the variables can then be used in the control programme.

For more information on EtherCAT, visit the homepage <https://www.ethercat.org/>.

EtherNet/IP

By default, the Ethernet/IP address is assigned via DHCP. A DHCP server must be available in the network for this.

To be able to assign the IP address manually, there is, for example, the tool BootP that simulates a DHCP server.

Alternatively, there is the option of having Christ assign a fixed IP address.

The EDS file for project planning is provided by Christ. This describes the input/output image of the Christ device and must be embedded in the configuration software. The input/output image or the variables can then be used in the control programme.

For more information on EtherNet/IP, visit the homepage <https://www.odva.org/>.

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2.4 Housing variant Front Panel

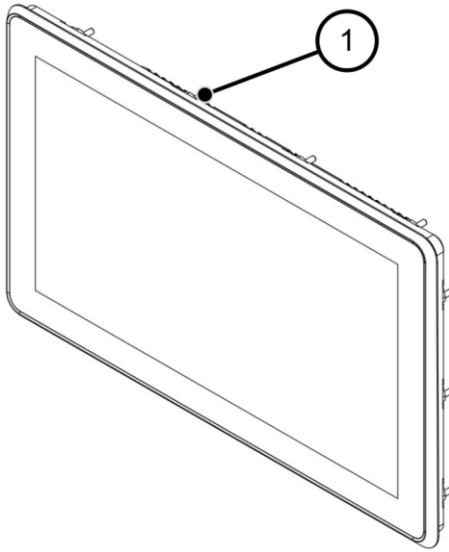


Illustration 15: Front Panel front

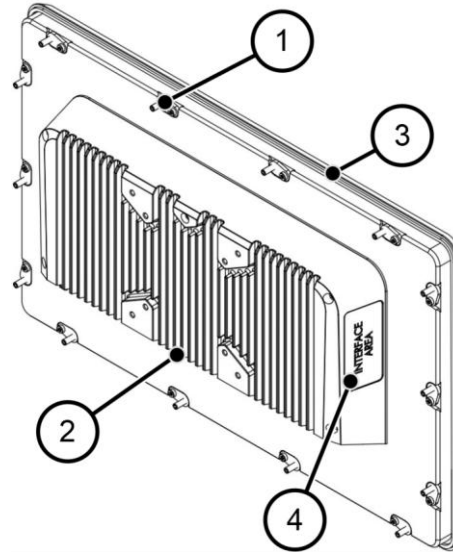


Illustration 16: Front Panel rear

1	Fastening clamp
2	Interface area
3	Seal
4	Interface area side

Table 10: Front Panel front and Front Panel rear

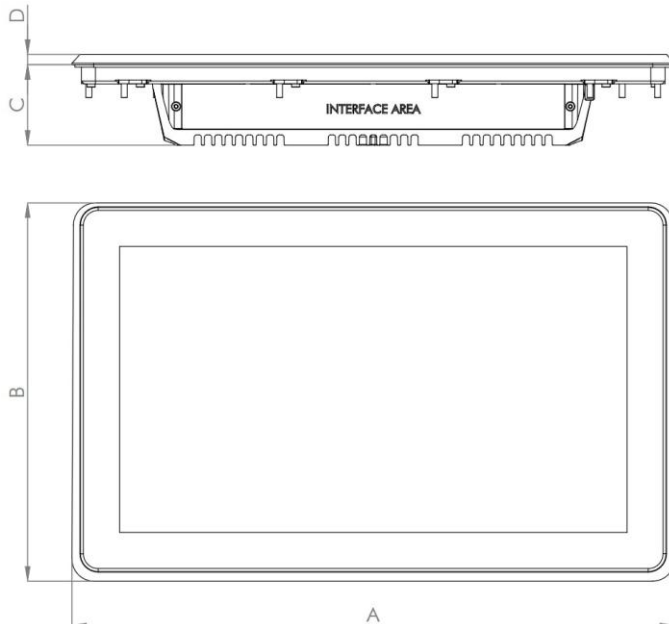


Illustration 17: Dimensions Front Panel

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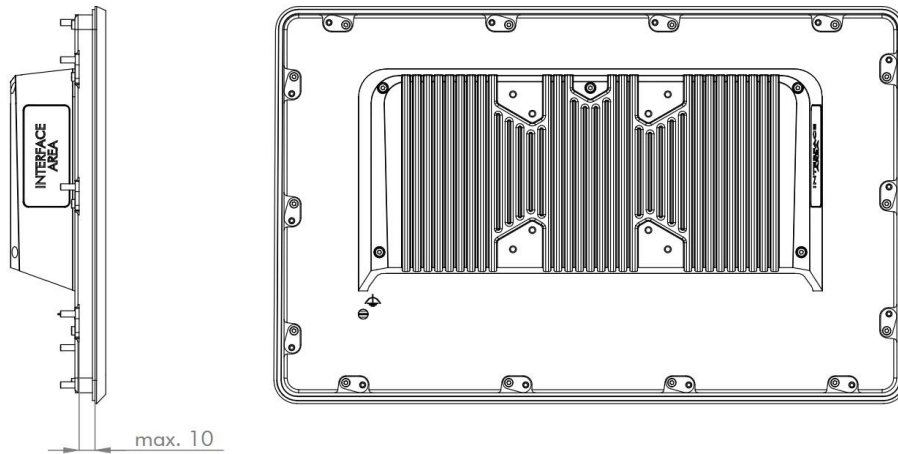


Illustration 18: Dimensions Front Panel rear

The drawing of the Front Panel is exemplary and may show deviations to the device. The detailed technical drawing can be found in the specific data sheet.

Dimensions are given in millimeters.

Size	A	B	C	D
7"	208	145	47	7
10.1"	273	190	50	7
10.4"	274	217	50	7
12.1"	322	222	52	7
13.3"	354	224	53	7
15"	366	288	55	7
15.6"	409	256	55	7
18.5"	474	293	55	7
21.5"	545	334	55	7
24"	601	367	57	7

Table 11: Dimensions Front Panel

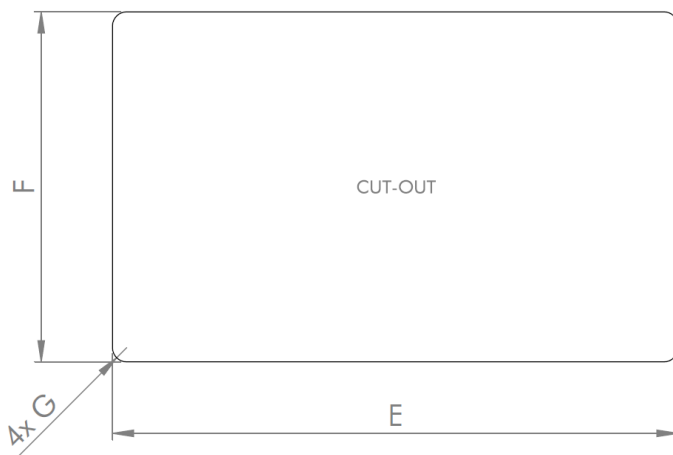


Illustration 19: Dimensions Front Panel Cutout

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Dimensions are given in millimeters.

Size	E	F	G
7"	196	134	R 10
10.1"	262	179	R 10
10.4"	262	206	R 10
12.1"	310	211	R 10
13.3"	343	213	R 10
15"	355	277	R 10
15.6"	397	245	R 10
18.5"	463	283	R 10
21.5"	533	323	R 10
24"	590	356	R 10

Table 12: Dimensions Front Panel Cutout

2.5 Housing Variant Open Frame

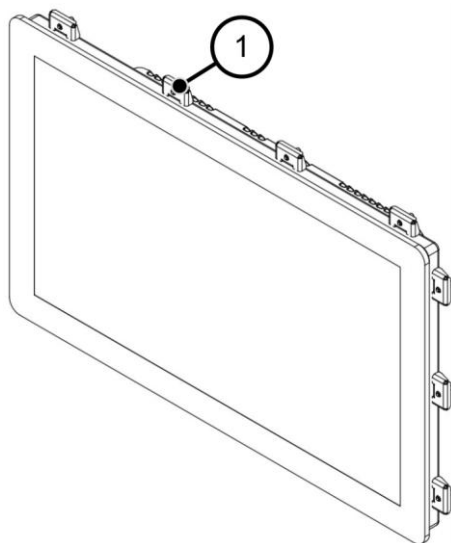


Illustration 20: Open Frame front

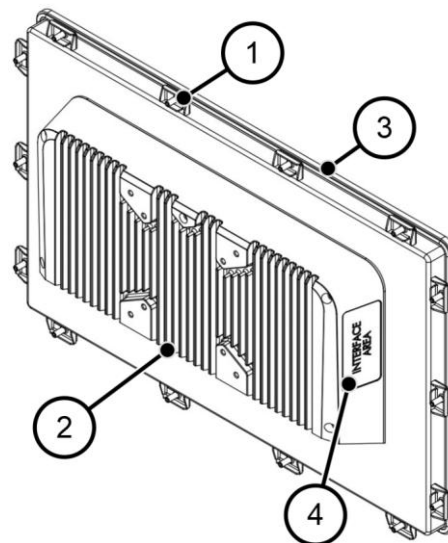


Illustration 21: Open Frame rear

1	Fastening clamp
2	Interface area
3	Seal
4	Interface area side

Table 13: Open Frame front and Open Frame rear

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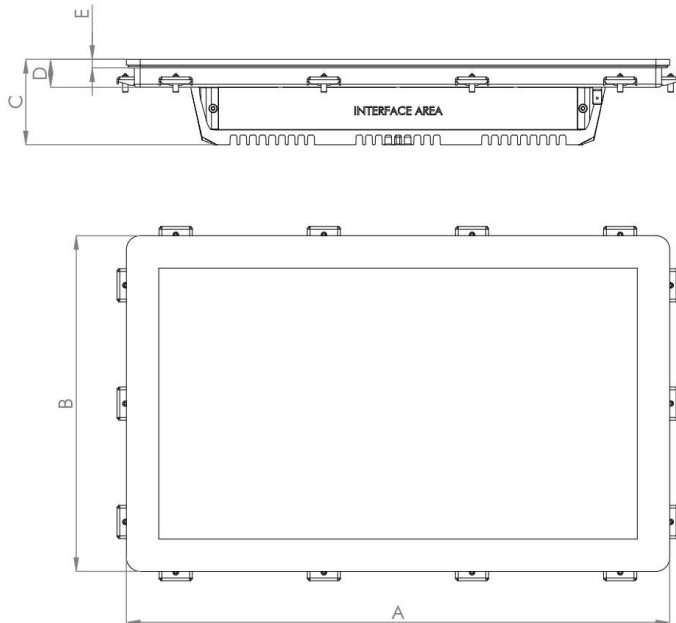


Illustration 22: Dimensions Open Frame

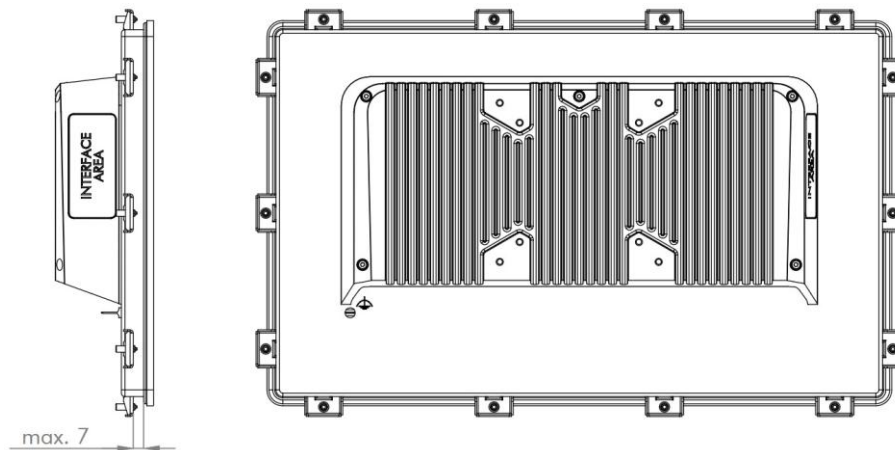


Illustration 23: Dimensions Open Frame rear

The drawing of the Open Frame is exemplary and may show deviations to the device. The detailed technical drawing can be found in the specific data sheet.

Dimensions are given in millimeters.

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Size	A	B	C	D	E
7"	192.2 ± 0.2	131.2 ± 0.2	56	20	5.7
10.1"	257.6 ± 0.2	176.2 ± 0.2	59	20	6.2
10.4"	254.8 ± 0.2	202.0 ± 0.2	59	20	6.2
12.1"	305.9 ± 0.2	208.0 ± 0.2	59	20	6.2
13.3"	338.7 ± 0.2	210.3 ± 0.2	62	20	6.2
15"	350.3 ± 0.2	274.3 ± 0.2	62	20	6.2
15.6"	393.0 ± 0.3	242.4 ± 0.3	62	20	6.2
18.5"	458.6 ± 0.3	279.6 ± 0.3	62	20	6.2
21.5"	528.8 ± 0.3	320.3 ± 0.3	62	20	6.2
24"	585.5 ± 0.3	353.0 ± 0.3	65	24	6.2

Table 14: Dimensions Open Frame



Illustration 24: Dimensions Open Frame Cutout Counterplate

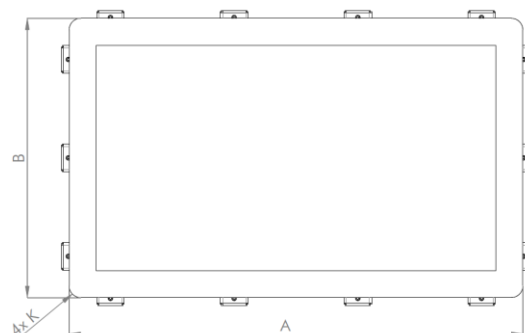


Illustration 25: Dimensions Open Frame Cutout Front- and Spacerplate

Dimensions are given in millimeters.

Size	F	G	H	K
7"	182	121	R 5	R10 ± 0.2
10.1"	248	166	R 5	R10 ± 0.2
10.4"	245	192	R 5	R10 ± 0.2
12.1"	296	198	R 5	R10 ± 0.2
13.3"	329	200	R 5	R10 ± 0.2
15"	340	264	R 5	R10 ± 0.2
15.6"	383	232	R 5	R10 ± 0.2
18.5"	449	270	R 5	R10 ± 0.2
21.5"	519	310	R 5	R10 ± 0.2
24"	575	343	R 5	R10 ± 0.2

Table 15: Dimensions Open Frame Cutout

Instruction Manual: Touch Industrial PC

Installation Open Frame

The actual cut-out-dimensions of the front- and spacerplate need to be subjected to the prevalent assembly situation (production tolerances, ambient temperature, etc.) and therefore to be defined by the customer.

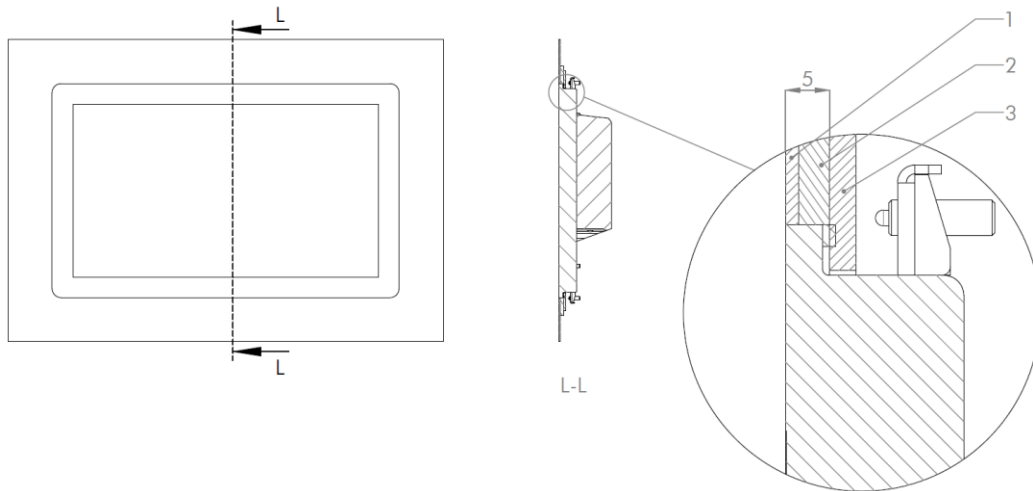


Illustration 26: Installation Open Frame Cutout




1	Frontplate
2	Spacerplate
3	Counterplate

Instruction Manual: Touch Industrial PC

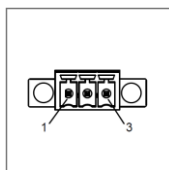
3 Description Hardware

The description of the hardware refers to the device interfaces and the possible extensions for the device.

3.1 External Interfaces

NOTICE	
	<p>External cable for Power Supply Malfunction occur</p> <ul style="list-style-type: none"> ➤ Prepare a proper earth connection on the power supply
NOTICE	
	<p>Signal and data cables Malfunction occur</p> <ul style="list-style-type: none"> ➤ Signal and data cables must be shielded and of high quality.
NOTICE	
	<p>Operating the interfaces outside their intended specification Malfunctions occur and the electronics of the device can be damaged or completely broken</p> <ul style="list-style-type: none"> ➤ All interfaces must be operated within their specification. Only cables and components that meet the requirements for the intended use of the interfaces may be connected.

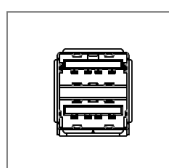
Supply Connector screwable



Mating Connector	Phoenix Connector MC 1,5 / 3-STF-3.5 (screwable)		
PIN	Function	Description	
1	GND	Ground	
2	FE	Functional Earth	
3	+24 VDC	Supply	

Table 16: Pinout Supply Connector screwable

USB Host 2.0 (Type A)



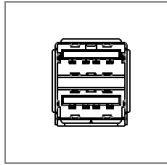
PIN	Function	Description
1	VBUS	USB VCC
2	D-	USB Data-
3	D+	USB Data+
4	GND	USB Ground

Table 17: Pinout USB 2.0

Instruction Manual: Touch Industrial PC

USB Host 3.2 Gen1 (Type A)

Only cables with a length of up to 3 metres may be used.

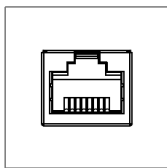


PIN	Function	Description
1	VBUS	USB VCC
2	D-	USB Data-
3	D+	USB Data+
4	GND	USB Ground
5	StdA_SSRX-	SuperSpeed transmitter differential pair
6	StdA_SSRX+	SuperSpeed transmitter differential pair
7	GND_DRAIN	Ground for signal return
8	StdA_SSTX-	SuperSpeed receiver differential pair
9	StdA_SSTX+	SuperSpeed receiver differential pair

Table 18: Pinout USB 3.2 Gen1

Ethernet 2.5 Gigabit

CAT6 S/FTP cables must be used.

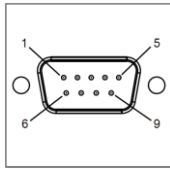


PIN	Function	Description
1	D1+	Transmit Data +
2	D1-	Transmit Data -
3	D2+	Receive Data+
4	D3+	Bidirectional +
5	D3-	Bidirectional -
6	D2-	Receive Data -
7	D4+	Bidirectional +
8	D4-	Bidirectional -

Table 19: pinout Ethernet 2.5 Gigabit

Instruction Manual: Touch Industrial PC

Serial Connector (Titanium)



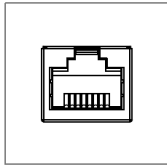
	RS-232		RS-422		RS-485	
PIN	Function	Description	Function	Description	Function	Description
1	DCD	Data Carrier Detect	TX-	Transmitter Differential Pair -	DATA-	Data Differential Pair A
2	RX	Receive Data	TX+	Transmitter Differential Pair +	DATA+	Data Differential Pair B
3	TX	Transmit Data	RX+	Receiver Differential Pair +	--	--
4	DTR	Data Transmit Ready	RX-	Receiver Differential Pair -	--	--
5	GND	Ground	GND	Ground	GND	Ground
6	DSR	Data Set Ready	--	--	--	--
7	RTS	Ready To Send	--	--	--	--
8	CTS	Clear To Send	--	--	--	--
9	RI	Ring Indicator	--	--	--	--

Table 20: Pinout Serial Connector Titanium

Serial connector (Argon)

Connector type RJ50

Instruction Manual: Touch Industrial PC

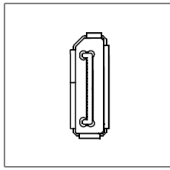


PIN	RS-232		RS-422		RS-485	
	Function	Description	Function	Description	Function	Description
1	DSR	Data Set Ready	--	--	--	--
2	GND	Ground	GND	Ground	GND	Ground
3	GND	Ground	GND	Ground	GND	Ground
4	TXD	Transmit Data	RX+	Receiver Differential Pair +	--	--
5	RXD	Receive Data	TX+	Transmitter Differential Pair +	DATA+	Data Differential Pair B
6	DCD	Data Carrier Detect	TX-	Transmitter Differential Pair -	DATA-	Data Differential Pair A
7	DTR	Data Terminal Ready	RX-	Receiver Differential Pair -	--	--
8	CTS	Clear To Send	--	--	--	--
9	RTS	Request To Send	--	--	--	--
10	RI	Ring Indicator	--	--	--	--

Table 21: Pinout serial connector Argon

Instruction Manual: Touch Industrial PC

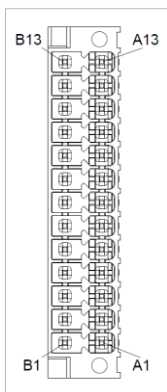
Display Port



PIN	Funktion	Beschreibung
1	DP data 0+	DP data 0+
2	GND	Masse
3	DP data0-	DP data0-
4	DP data1 +	DP data1 +
5	GND	Masse
6	DP data1-	DP data1 -
7	DP data2+	DP data2+
8	GND	Masse
9	DP data2-	DP data2-
10	DP data3+	DP data3+
11	GND	Masse
12	DP data3-	DP data3-
13	CONFIG1 CAD	Kabel Adapter erkannt
14	CONFIG2	Masse (Pull-Down)
15	AUX_CH+	Zusatzeinrichtung +
16	GND	Masse
17	AUX_CH-	Zusatzeinrichtung -
18	HPD	Hot Plug erkannt
19	GND	Masse
20	DP_PWR 3,3V	Versorgung DP

Table 22: Pinout Display Port

Phoenix DMCV 1,5/13-G1F-3,5-LR P20THR



PIN	Function	Description	PIN	Function	Description
A1	P1_C1	Position 1 Contact 1	B7	P4_C2	Position 4 Contact 2
B1	P1_C2	Position 1 Contact 2	A8	P4_C24	Position 4 Contact 24
A2	P1_C24	Position 1 Contact 24 VDC	B8	P4_LED	Position 4 LED
B2	P1_LED	Position 1 LED	A9	E_C1	Emergency Stop Contact 1
A3	P2_C1	Position 2 Contact 1	B9	E_C2	Emergency Stop Contact 2
B3	P2_C2	Position 2 Contact 2	A10	E_C3	Emergency Stop Contact 3

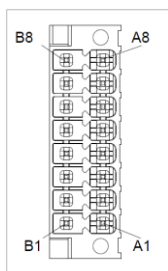
Instruction Manual: Touch Industrial PC

A4	P2_C24	Position 2 Contact 24 VDC	B10	E_C4	Emergency Stop Contact 4
B4	P2_LED	Position 2 LED	A11	E_C5	Emergency Stop Contact 5
A5	P3_C1	Position 3 Contact 1	B11	E_C6	Emergency Stop Contact 6
B5	P3_C2	Position 3 LED Contact 2	A12	GND	Ground
A6	P3_C24	Position 3 Contact 24 VDC	B12	24 VDC	+24 VDC
B6	P3_LED	Position 3 LED	A13	GND	Ground
A7	P4_C1	Position 4 Contact 1	B13	24 VDC	+24 VDC

Table 23: Pinout Phoenix DMCV 1,5/13-G1F-3,5-LR P20THR

The pin assignment may vary. This can be found in the device-specific data sheet.

Phoenix DMCV 1,5/8-G1F-3,5-LR P20THR



PIN	Function	Description	PIN	Function	Description
A1	P5_C1	Position 5 Contact 1	A5	P7_C1	Position 7 Contact 1
B1	P5_C2	Position 5 Contact 2	B5	P7_C2	Position 7 Contact 2
A2	P5_C24	Position 5 Contact 24 VDC	A6	P7_C24	Position 7 Contact 24 VDC
B2	P5_LED	Position 5 LED	B6	P7_LED	Position 7 LED
A3	P6_C1	Position 6 Contact 1	A7	P8_C1	Position 8 Contact 1
B3	P6_C2	Position 6 Contact 2	B7	P8_C2	Position 8 Contact 2
A4	P6_C24	Position 6 Contact 24 VDC	A8	P8_C24	Position 8 Contact 24 VDC
B4	P6_LED	Position 6 LED	B8	P8_LED	Position 8 Contact LED

Table 24: Pinout Phoenix DMCV 1,5/8-G1F-3,5-LR P20THR

The pin assignment may vary. This can be found in the device-specific data sheet.

3.2 Add-On

The extension options offered by Christ as standard are described below.

Instruction Manual: Touch Industrial PC

3.2.1 Extensions in the interface area

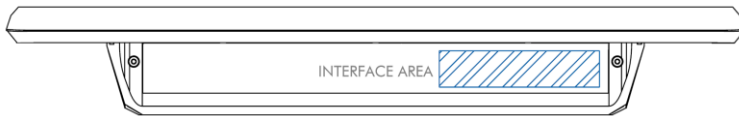
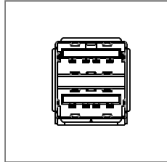


Illustration 27: Extensions in the interface area

USB Host 2.0 (Type A)

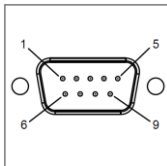


PIN	Function	Description
1	VBUS	USB VCC
2	D-	USB Data-
3	D+	USB Data+
4	GND	USB Ground

Table 25: Pinout USB 2.0

The maximum load for both interfaces is 0.5 A.

CAN connector

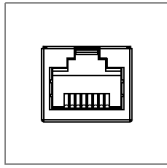


PIN	Function	Description
1	--	--
2	CAN_L	CAN Low Signal
3	CAN_GND	CAN Ground
4	--	--
5	--	--
6	--	--
7	CAN_H	CAN High Signal
8	--	--
9	--	--

Table 26: Pinout CAN connector

Instruction Manual: Touch Industrial PC

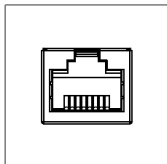
Ethernet Gigabit with PoE++



PIN	Function	Description
1	D1+	Transmit Data +
2	D1-	Transmit Data -
3	D2+	Receive Data+
4	D3+	Bidirectional +
5	D3-	Bidirectional -
6	D2-	Receive Data -
7	D4+	Bidirectional +
8	D4-	Bidirectional -

Table 27: Pinout Ethernet Gigabit with PoE++

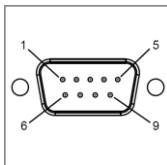
EtherCAT® / Profinet®



The pinout corresponds to the EtherCAT® and Profinet® standards.

Table 28: Pinout EtherCAT® / Profinet®

Serial RS-232



PIN	Function	Description
1	DCD	Data Carrier Detect
2	RX	Transmit Data -
3	TX	Receive Data
4	DTR	Transmit Data
5	GND	Data Transmit Ready
6	DSR	Ground
7	RTS	Data Set Ready
8	CTS	Clear To Send
9	RI	Ring Indicator

Table 29: Pinout Serial RS-232

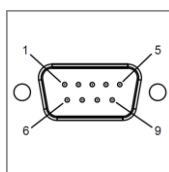
Properties:

Galvanic isolation	1 kV (functional)
Data rate	up to 250 kbps

Table 30: Properties serial RS-232

Instruction Manual: Touch Industrial PC

Serial RS-485



PIN	Function	Description
1	DATA-	Data Differential Pair A
2	DATA+	Data Differential Pair B
3	--	--
4	--	--
5	GND	Ground
6	--	--
7	--	--
8	--	--
9	--	--

Table 31: Pinout Serial RS-485

Properties:

Galvanic isolation	1 kV (functional)
Data rate	up to 500 kbps
Termination	Optional 120 Ω termination
Bias	680 Ω (PU/ PD)

Table 32: Properties Serial RS-485

3.2.2 Extensions in the interface area side

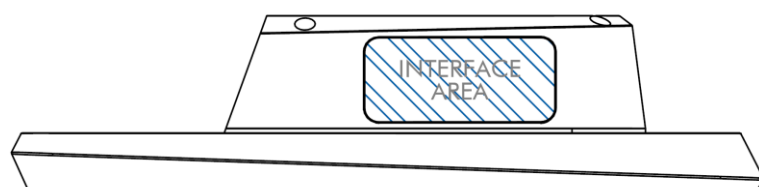


Illustration 28: Extensions in the interface area side

USB 2.0 side

Interface	1 x USB Host 2.0 (Type A)
Degree of protection	IP64 (IP67 with protection cap)

Table 33: Add On side USB 2.0

Power Button side

Type	1 x MCS 16 (Manufacturer: Schurter)
Degree of protection	IP65

Table 34: Add On side Power Button

Instruction Manual: Touch Industrial PC

3.2.3 UPS (Uninterruptible Power Supply)

The instructions for UPS Control can be found in the Download section of the Christ website: [Downloads](#)

	10.1" - 12.1"	13.3" - 24"
Energy Storage	350 Ws	750 Ws
Charge Duration	35 seconds	80 seconds
Standard Configuration	Time until system shutdown: 1 s Time until display darkening: 0 s Display brightness: 5 % Power save mode: active	
Supply Voltage	24 VDC ± 20 %	
Remaining residual capacity of 70 %	At 20 °C ambient temperature in continuous operation after 8.5 years At 30 °C ambient temperature in continuous operation after 4.3 years At 40 °C ambient temperature in continuous operation after 2.1 years At 50 °C ambient temperature in continuous operation after 1.1 years	

The device was operated with the following conditions: operating system Windows 10 IoT, no applications, connection of external display with a brightness 0 %.

It must be ensured that the customer application is ended quickly enough for the panel to shut down properly. Otherwise, no protection against data loss or any other disfunction can be guaranteed. The buffer time can be significantly shorter depending on the CPU load, display and peripherals.

Due to aging of the UPS during operation, the required buffer time should not exceed 70 % of the available discharge duration at the beginning.

The exact discharge duration and buffer time must be determined anew in every system setup.

System	Energy Storage 350 Ws	Energy Storage 750 Ws
Intel® Atom® x6211E Dual Core 1.3 / 3.0 GHz	25 s	55 s
Intel® Atom® x6425E Quad Core 2.0 / 3.0 GHz	25 s	55 s
Intel® Celeron™ 6305E 1.8 GHz	22 s	45 s
Intel® Core™ i3-1115G4E 2.2 / 3.9 GHz	18 s *	40 s
Intel® Core™ i5-1145G7E 1.5 / 4.1GHz	12 s *	28 s

Instruction Manual: Touch Industrial PC

Intel® Core™ i7-1185G7E 1.8 / 4.4 GHz	12 s *	28 s
--	--------	------

Table 35: UPS discharge duration



* It is recommended to use the PowerSaving setting in UPSControl.exe and to throttle the system to 50 % utilisation.

Instruction Manual: Touch Industrial PC

4 Mounting

This chapter describes all the steps for assembly. The following warnings are safety instructions that must be applied throughout the assembly chapter and in every other life cycle of the device.

The drawings illustrating the installation are only examples and may differ from the actual appearance of the appliance.

NOTICE	
	<p>Power Supply</p> <p>Disturbance of the proper operation</p> <ul style="list-style-type: none"> ➤ The device must be operated with protective low voltage (< 28.8 VDC).
⚠ WARNING	
	<p>Dropping a device</p> <p>Injuries and bruises to the legs and / or feet</p> <ul style="list-style-type: none"> ➤ Wear safety shoes

Note for the installation site

This device is not designed for outdoor use.

Make sure that the ambient temperature and humidity are within the ranges which are specified under [Environmental Conditions](#).

The device must not be exposed to direct sunlight.

Make sure that the device is installed so that is accessible for the operator.

Installation instructions


Check the package contents for any visible damage and for completeness.

In case of damage, do not install the device and contact the [Christ Service](#).

4.1 Cutout preparation

The strength of the material of the mounting cutout must be sufficiently high.

The dimensions for the mounting cutouts are listed in the chapters [Housing variant front panel](#) and [Open Frame](#) .

NOTICE	
	<p>Mounting the device in a non-flat cutout</p> <p>Malfunctions occur and the appliance may be damaged or destroyed. The appliance does not seal properly with the mounting plate and water may enter.</p> <ul style="list-style-type: none"> ➤ Once the cutout has been produced, care must be taken to ensure that the material does not warp. If the material is deformed, it must be straightened again. The material must not be straightened by mounting the device.


Instruction Manual: Touch Industrial PC

4.2 Torque

All screws must be tightened to the following tightening torques unless a different tightening torque is required.

Screw	Torque
M2	0.3 Nm
M3	1.0 Nm
M4	2.3 Nm

4.3 Connection of the power supply

NOTICE	
	<p>Short circuit Power Supply / device may be damaged</p> <p>➤ The power supply connection must be mounted in a voltage-free state.</p>

Use conductors with a cross-section of 0.75 mm² to 1.5 mm². Use the MC 1,5/ 3-STF-3,5 PCB connector from Phoenix.

Strip the insulation from the individual wires of the conductor (1). Insert these into the connection contacts (3) of the PCB connector and tighten the screw contacts (2) with a screwdriver and a maximum torque of 0.3 Nm.

The rear view (4) of the connector is shown for clarification.

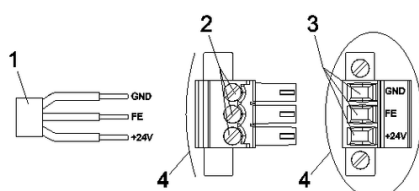



Illustration 29: Connection of the power supply

4.4 Earth Connection

NOTICE	
	<p>Earthing not connected Not guaranteed functionality of the device</p> <p>➤ All earth connections must be connected to an earth point</p>

VESA / VESA Automation

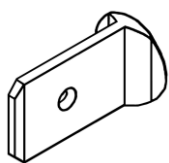
The appliance complies with protection class III and does not require protective earthing. However, functional earthing may be useful to reduce electromagnetic interference (EMC). If the device is mounted on a metal VESA mount, this can be used as a conductive connection for

Instruction Manual: Touch Industrial PC

earthing. The resistance between the back cover of the device and the VESA bracket must be less than 0.5 Ohm. The bracket to which the device is attached via the VESA mount must have a sufficient connection to earth. For example, the support arm should be connected to the switch cabinet or the earthing rail using a cable with a cross-section of 1.5 mm².

Front Panel / Open Frame

The device corresponds to protection class III and does not require protective earthing. Functional earthing must be ensured to reduce electromagnetic interference (EMC). A cable with a cross-section of at least 1.5 mm² must be laid at the earthing connection to the central earthing point of the switch cabinet or system. The earthing connection is labelled with a corresponding engraving.



Earth connection



Engraving

Instruction Manual: Touch Industrial PC

4.5 Mounting VESA and VESA Automation

The VESA and VESA Automation housing variants support two common VESA formats:

- VESA MIS-D, 75
- VESA MIS-D, 100

There are four mounting threads with the measurement of M4 x 5. The fixing screws are not included in the delivery attachment of the device because of the different installation situation. In the assembly drawing, any support arm was used as an example.

Step 1:

Dock the unit onto the support arm and screw it on

Final situation:

Device is mounted to the support arm

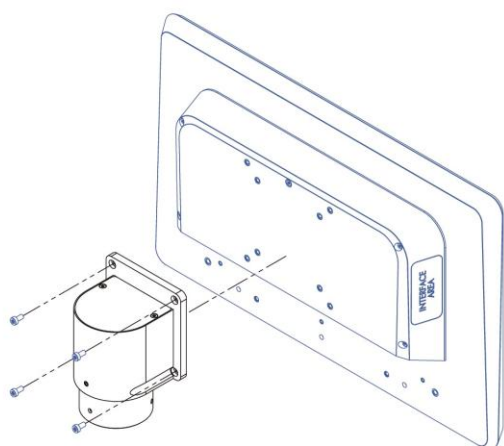


Illustration 30: Mounting VESA Step 1

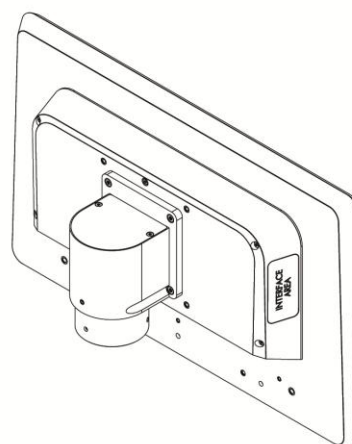


Illustration 31: Mounting VESA final situation

Instruction Manual: Touch Industrial PC

VESA IP65

For the housing variant VESA which has included the IP65 cover, the device can only be mounted with the VESA MIS-D, 75 if the cables are routed through the cutout.

There are four mounting threads with the measurement of M4 x 5. The fixing screws are not included in the delivery attachment of the device because of the different installation situation.

Initial situation

Mounting arm and device are not connected

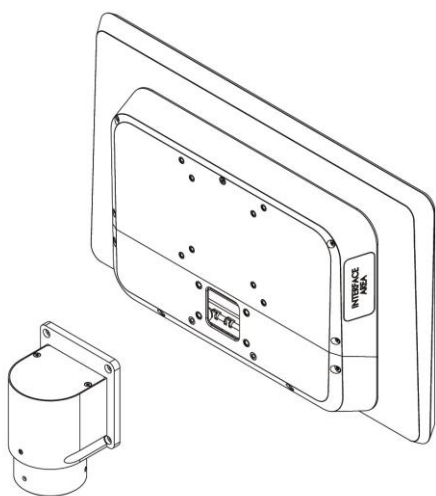


Illustration 32: Mounting VESA IP65 initial situation

Step 1:

Loosen the screws of the IP cover and remove it

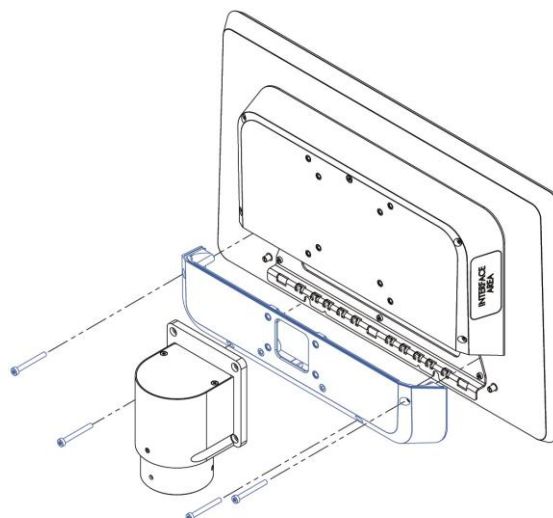


Illustration 33: Mounting VESA IP65 Step 1

Step 2:

Fix the IP cover with the two lower screws to the Hanging in the device into the IP cover, connecting the cables and straighten up the device

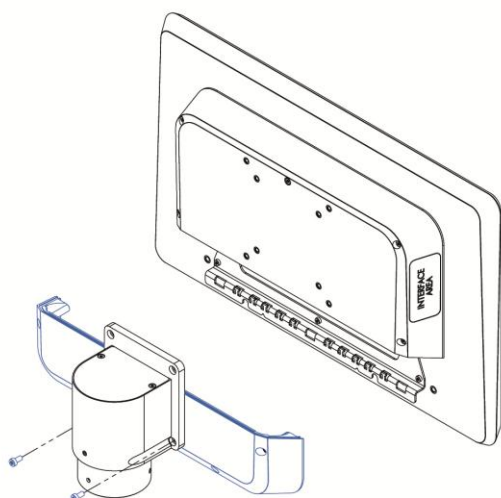


Illustration 34: Mounting VESA IP65 Step 2

Step 3:

Hanging in the device into the IP cover, connecting the cables and straighten up the device

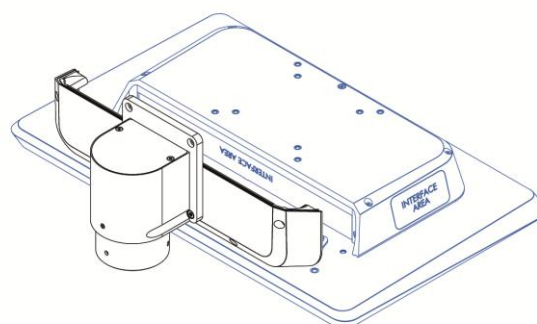
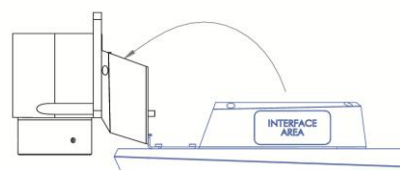


Illustration 35: Mounting VESA IP65 Step 3

Instruction Manual: Touch Industrial PC

Step 4:

Hold up the device and tighten the screws

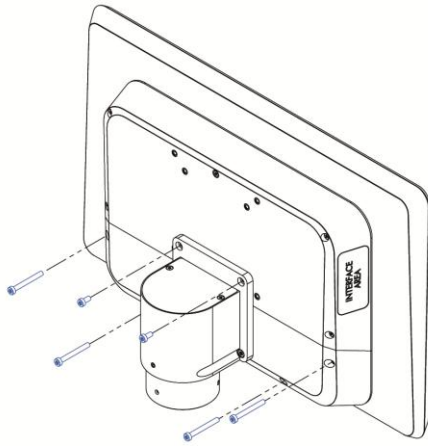


Illustration 36: Mounting VESA IP65 Step 4

Final situation:

Device is mounted to the mounting arm

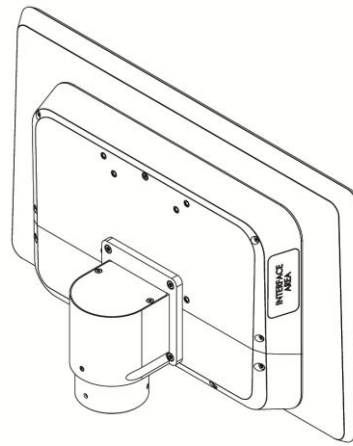



Illustration 37: Mounting VESA IP65 final situation

Instruction Manual: Touch Industrial PC

4.6 Mounting Front Panel

NOTICE	
	<p>Seal does not close</p> <p>Moisture penetration into the device</p> <ul style="list-style-type: none"> ➤ Select the correct thickness and material of the mounting plate for the cutout. Tighten the screws with a defined torque

Step 1:
Install the front panel into the cutout

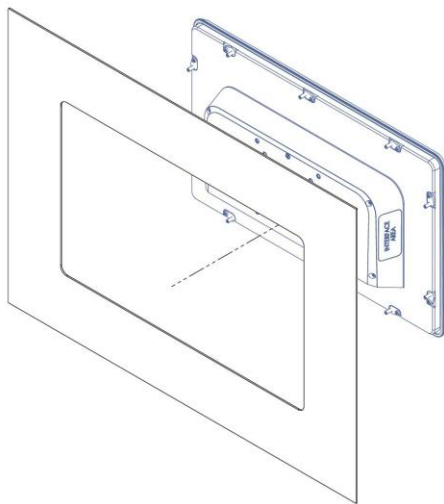


Illustration 38: Montage Front Panel Schritt 1

Step 2:
The fastening clamps must lie entirely behind the mounting plate

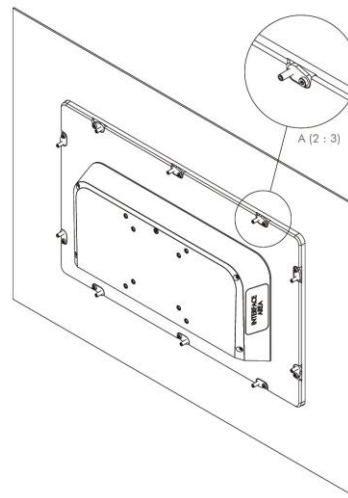


Illustration 39: Mounting Front Panel Step 2

Step 3:
Turn the fastening clamps outwards and tighten to the specified torque. (M3 - 1.0 Nm)

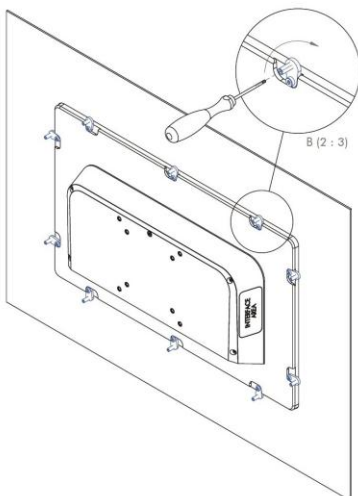


Illustration 40: Mounting Front Panel Step 3

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4.7 Mounting Open Frame

Step 1:

Install the Open Frame Panel into the cutout

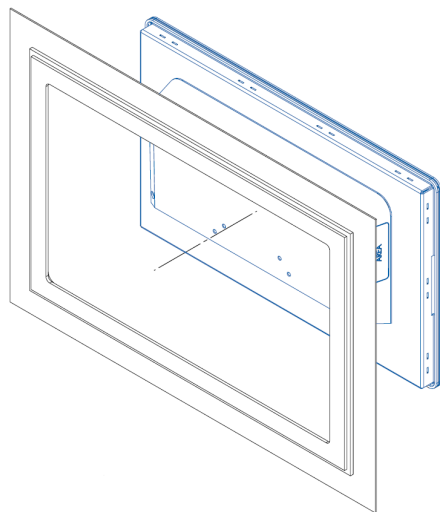


Illustration 41: Mounting Open Frame Step 1

Step 2:

- 1 - Lightly screw the grub screw into the mounting bracket
- 2 - Insert the mounting bracket into the slots
- 3 - Engage the mounting bracket to one side

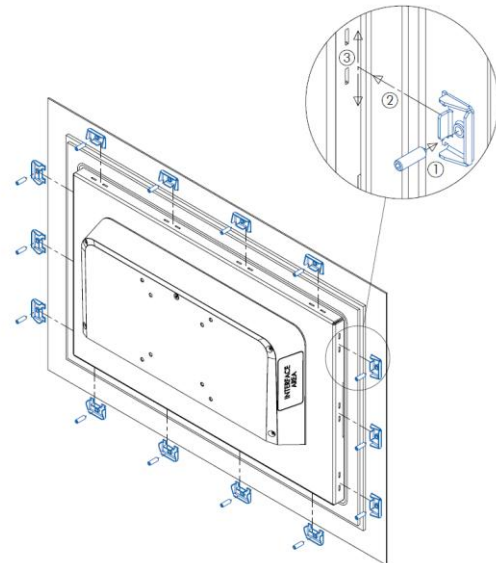


Illustration 42: Mounting Open Frame Step 2

Schritt 3:

Tighten the grub screws to the specified torque.
(M3 - 1.0 Nm)

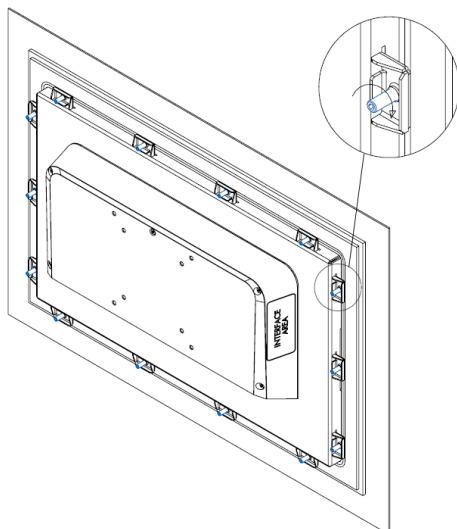


Illustration 43: Mounting Open Frame Step 3

Instruction Manual: Touch Industrial PC

4.8 Mounting IP cover

Step 1:

Screw 1 x strain relief and assembly aid M3 x 5 to the front frame with 5 x cylinder screw.

Tightening torque: 1.0 Nm

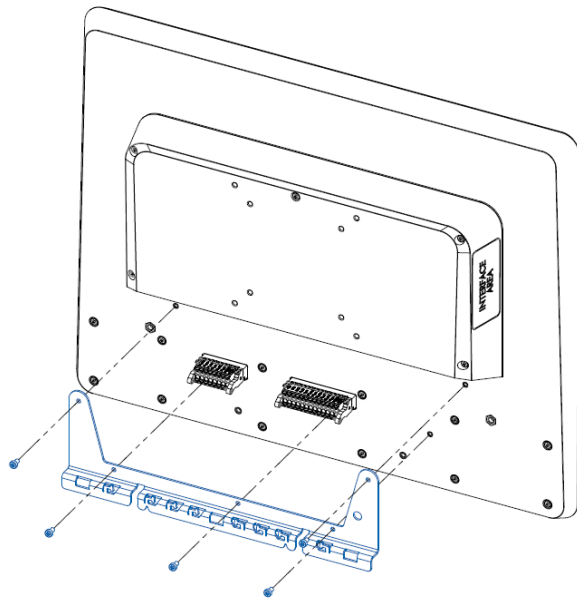


Illustration 44: Mounting IP cover step 1

Step 2:

Screw 2 x setscrew ISO 2342 with slot and cone point M5 x 12 into the front frame.

Tightening torque: 2.0 Nm

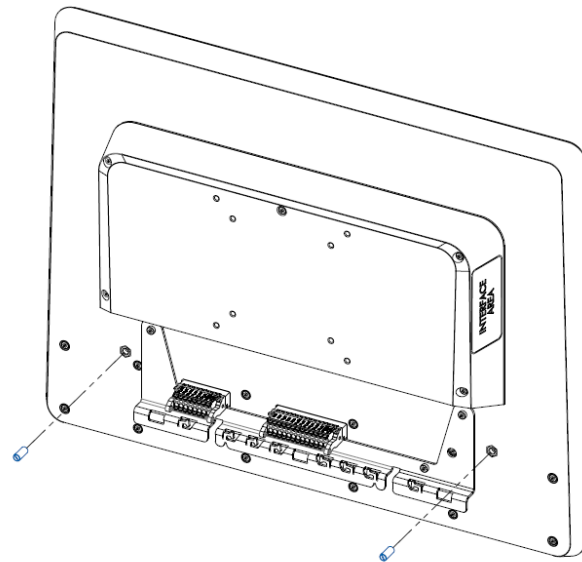


Illustration 45: Mounting IP cover step 2

Step 3:

Screw the IP cover onto the front frame.

Tightening torque: 2.3 Nm

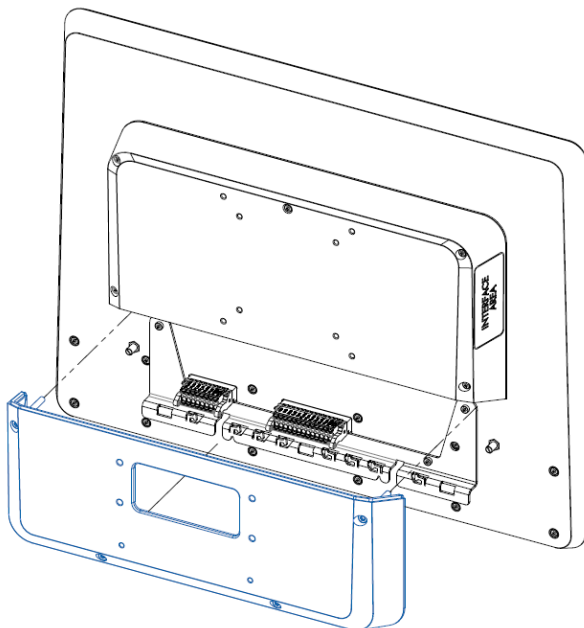


Illustration 46: Mounting IP cover step 3


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4.9 Faceplate

The faceplate can be extended at positions P1 to P8 using extension boards with switching elements of Schlegel. The steps for the expansion are described below.

The maximum number of the operating elements to be expanded is determined by the size of the device.

Size of the display	Maximum number of the operating elements
13.3"	4
15.6"	6
18.5"	8
21.5"	8
24"	8

NOTICE	
	<p>Independent extension</p> <p>Christ adheres to the following provisions:</p> <ul style="list-style-type: none"> ➤ Costs and damage caused by the extension by the customer will not be covered ➤ In the event of servicing, additional operating elements will not be tested ➤ The customer must ensure that the operating elements function properly

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4.9.1 Dismounting faceplate

Step 1:

Loosen the screws marked in blue on the back of the device.

Step 2:

Remove the faceplate carefully.

Step 3:

If cables are plugged into the faceplate, unplug them.

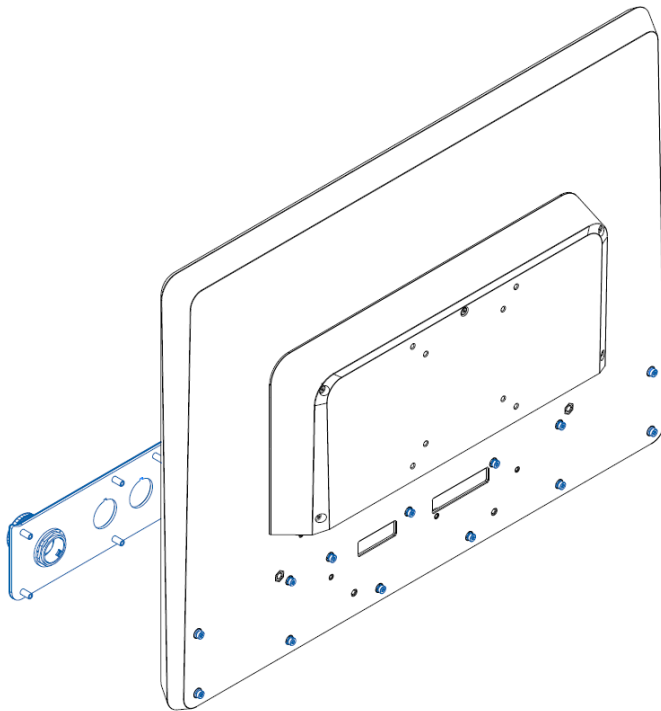


Illustration 47: Disassembly faceplate

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4.9.2 Adjusting the faceplate

At the positions where another control element is to be installed, the faceplate must be opened at the predefined points. The cut-out for the control element must be exactly as large as the faceplate specifies.

It is your own responsibility to decide how the adjustment is to be made. Attention must be paid to your own safety and risk of injury.

The control elements must be mounted on the faceplate.

Notice:

The control elements used must comply with the Schlegel Shortron ® base-plate mounting series.

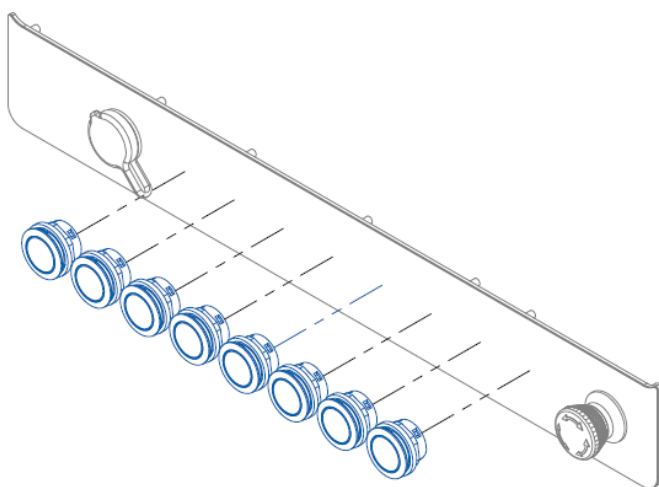


Illustration 48: Positions of the control elements

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4.9.3 Pushbutton boards

Notice:

If the pushbutton board for the control element to be expanded already exists, the following steps are not necessary.

Step 1:

Fasten the pushbutton board using the correct number of screws.

Tightening torque: 0.3 Nm

Step 2:

Plug the cable into the pushbutton board.

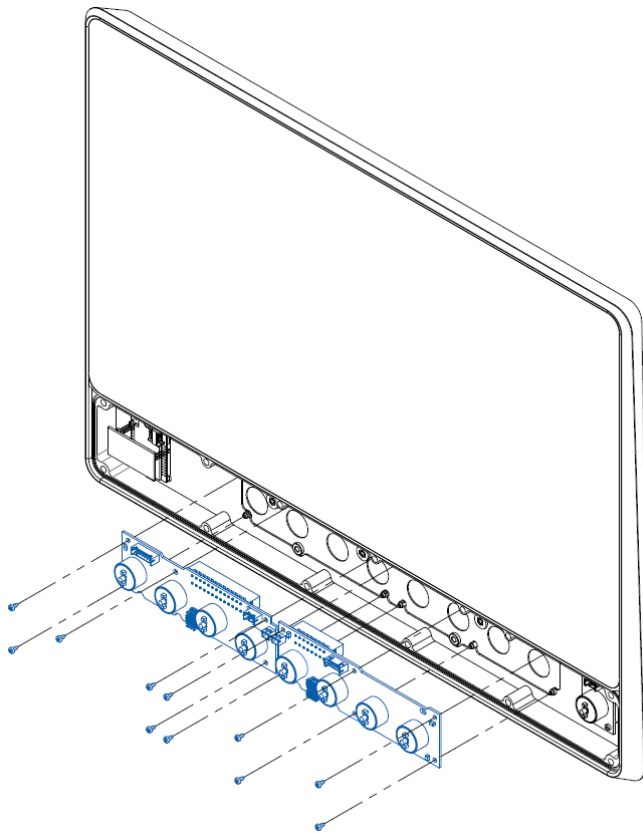


Illustration 49: Mounting pushbutton board

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4.9.4 Mounting faceplate



After the extension has been completed, the faceplate is refitted.

Step 1:

If cables have been unplugged from the faceplate, plug them back in.

Step 2:

Attach the faceplate.

NOTICE	
	<p>Pinched cables</p> <p>Malfunction of the control elements</p> <ul style="list-style-type: none"> ➤ Cables must not be pinched
⚠ DANGER	
	<p>Incorrect mounting of the emergency stop</p> <p>The function of the emergency stop is disturbed</p> <ul style="list-style-type: none"> ➤ After each opening of the faceplate and before restarting the machine, a functional test of the emergency stop must be carried out.

Step 3:

Screw in all screws on the back.

Tightening torque: 1.0 Nm

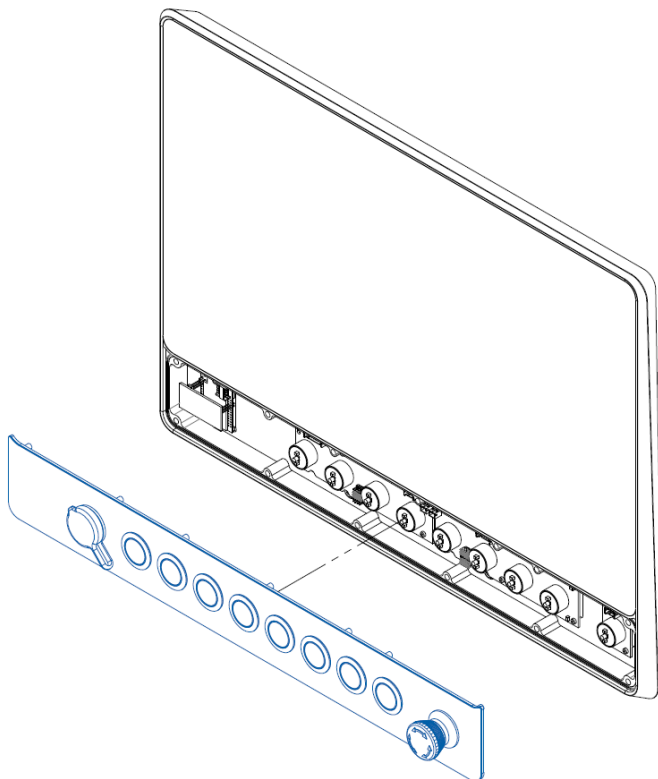


Illustration 50: Mounting faceplate

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5 Commissioning

To put the device into operation, connect the power supply to the unit.

The device starts.

Further steps for commissioning are not necessary.

5.1 Function of the power button

If the device has a power button, it behaves according to the following standard.

When the device is plugged into the power supply, the device boots up without having to press the power button.

If the power button is pressed while the device is running, the device shuts down.

If the power button is pressed while the device is not running, the device starts up. The power supply must be present at the device.

Notice:

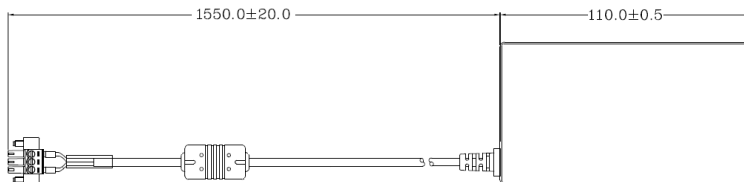
A different behaviour may occur if the device does not have the standard configuration.

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6 Accessories and Spare Parts


The accessories listed here have been checked by Christ and are compatible with the products. The following accessories are available:

6.1 Power supply



Input Voltage	90 - 264 VAC
Input Current	max. 1 A
Input Frequency	47 - 63 Hz
Consumption with unloaded output	max. 0.075 W
Output Voltage	24 VDC
Output Current	max. 2.5 A
Interne Verbindungen	GND and PE are internally connected
Temperature Range Operation	0 - 70°C
Humidity Operation	20 - 80% RH non condensing

Table 36: Power supply

NOTICE	
	<p>The power supply shown here has a limited power capacity.</p> <p>If the device's required power exceeds the rated capacity of the power supply, the device may not operate properly.</p> <ul style="list-style-type: none"> ➤ In this case, the customer must select and size an appropriate power supply.

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6.2 Stand

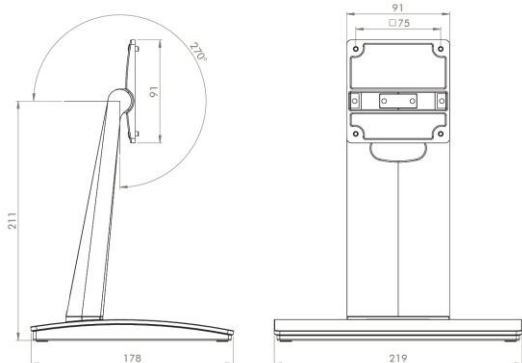


Illustration 51: Stand large

VESA75 Stand large

Height 210 mm

Setting angle 0 - 99°

12.1" - 24"

Table 37: Stand large

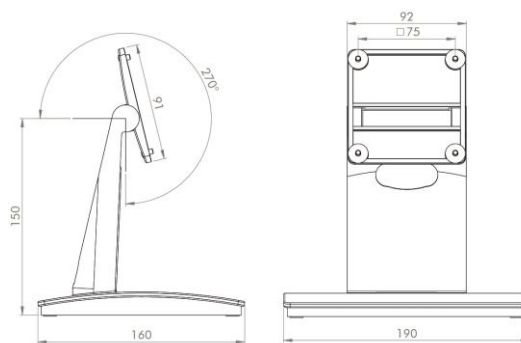


Illustration 52: Stand small

VESA75 Stand small

Height 150 mm

Setting angle 0 - 81°

7" - 10.4"

Table 38: Stand small

6.3 Arm Mounting System

	VESA 75	VESA 100
Material	Aluminium / schwarz coated	
Dimensions	113 x 90 x 83 [mm]	125 x 115 x 83 [mm]
Mounting	VESA MIS-D, 75 4 x screw M4 x 8 mm (torque 2.3 Nm)	VESA MIS-D, 100 4 x screw M4 x 8 mm (torque 2.3 Nm)
Weight	0.7 kg	0.8 kg
Bearing load	max. 8 kg	max. 14 kg
Swivelling range	343°	
Tube	Ø 48.3 mm	
Protection class	IP54	IP54

The instructions for for the support arm can be found in the download section of the Christ website: [Downloads](#)

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7 Software

The Software chapter describes settings and functions that may be required to use the device.

7.1 BIOS Basic Settings

AMI BIOS ROM has built-in settings program that allows users to make basic settings. This information is stored in a battery supported CMOS RAM, so it remains stored even when there is no power supply.

Accessing the BIOS works by pressing the "Del" key several times while the device is booting.

The following tabs in the BIOS enable various settings.

Main	Set date and time
Advanced	Make advanced BIOS settings like: COM, ACPI, etc.
Chipset	SATA and VMD (RST) configuration
Security	Set administrator password
Boot	Set Boot Option
Save & Exit	Save the settings made and initiate a restart. (Also possible with the F4 key on the keyboard)

Table 39: BIOS

Pressing F3 and confirming the query "Load Optimized Defaults?" with "Yes" restores the delivery state.

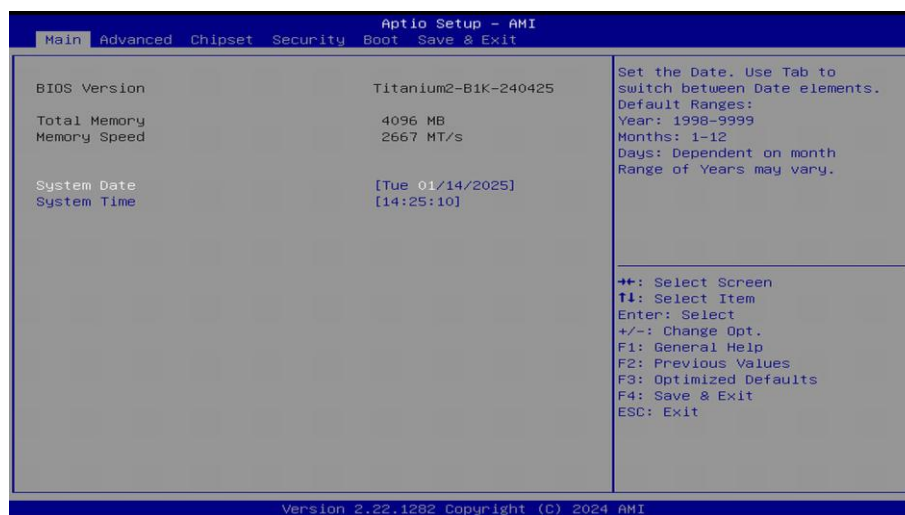


Illustration 53: BIOS

7.1.1 COM Port configuration

Argon

In order for the serial port to recognise RS-232, RS-422 or RS-485, the following settings must be made in the BIOS:

Instruction Manual: Touch Industrial PC

1. Select "Advanced" tab
2. Select "F81804 Super IO Configuration"
3. Select "Serial Port1 Configuration"
4. Make setting in "Device Mode" (RS232, RS485 TX High Active, RS485 TX Low Active, RS485 with Termination TX Low Active, RS422, RS422 with Termination)
5. Save with keystroke "F4" (confirmation with "Yes")

Titanium

In order for the serial port to recognise RS-232, RS-422 or RS-485, the following settings must be made in the BIOS:

1. Select "Advanced" tab
2. Select "F81964 Super IO Configuration"
3. Select "Serial Port1 Configuration"
4. Under "SERIAL PORT MODE SELECT" select the mode (RS232, RS422, RS485)
5. If RS422 or RS485 mode has been selected, settings can be made for "RS422/RS485 Termination" or "RTS Auto Flow Control"
6. Save with keystroke "F4" (confirmation with "Yes")

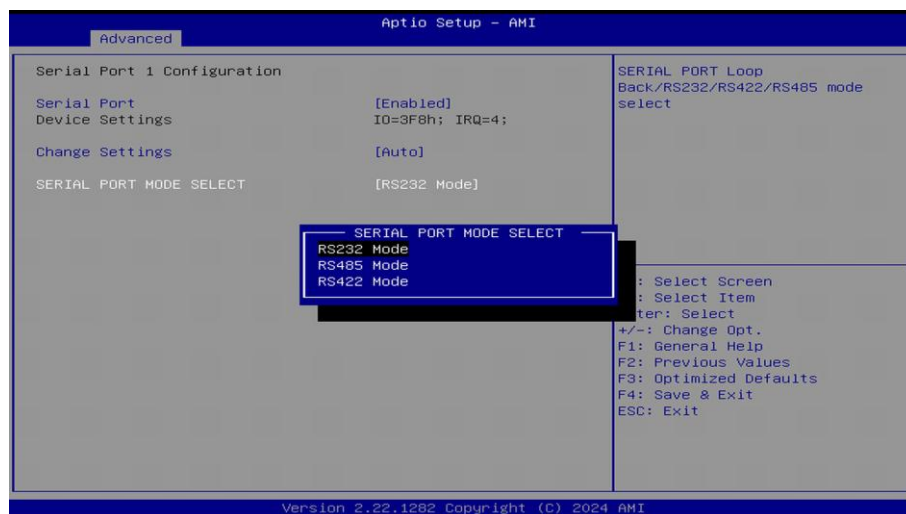


Illustration 54: BIOS COM Port Titanium

7.1.2 Set Boot Priority

Argon / Titanium

If you want to boot from a USB device, the following settings must be made in the BIOS:

1. Select "Boot" tab
2. Select "Boot Option #1"
3. Select USB device with "Enter"
4. Save with keystroke "F4" (confirmation with "Yes")

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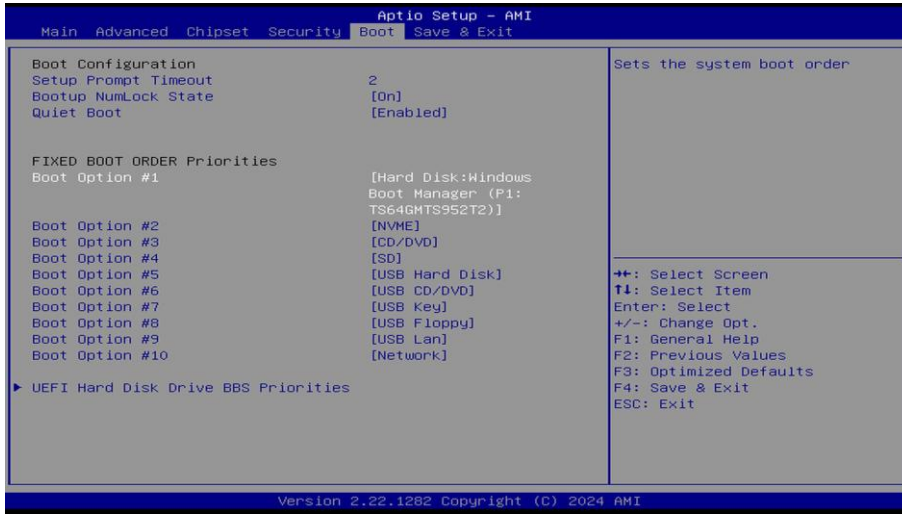


Illustration 55: BIOS Boot Priority

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7.2 BIOS Update

7.2.1 Preparation

Copy the AMI BIOS update files to a USB stick

You can obtain the required files from Christ Electronic Systems. These are the same for Argon and Titanium.

The following illustration is only an example.

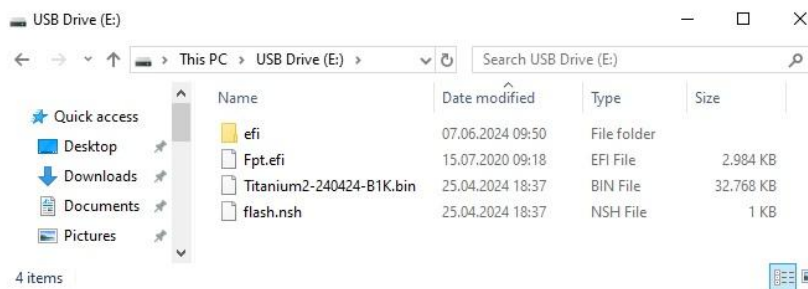


Illustration 56: BIOS update files

7.2.2 Perform Update

Insert the FAT32 formatted USB stick with the required files into the device.

Set the USB stick to Hard Disk Boot Priority in the BIOS. You can read about the procedure under [Boot Priority](#).

The EFI Update Script is automatically detected on the USB stick and starts the update process.

- Confirm the question: "Enter 'q' to quit, any other key to continue:" with Enter.

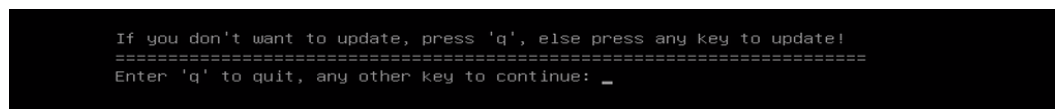


Illustration 57: BIOS update

- Confirm the question "Do you want to continue? Y/<N> or q to quit:" with "y"
 - Note: If you are using a German keyboard, confirm with "z"
- The update is executed
- The message "FPT Operation Successful" indicates successful completion



Illustration 58: BIOS update successful

- Disconnect the power supply
- Restore the power supply and enter the BIOS again (do not reboot)
- Press the F3 key to confirm the question "Load Optimized Defaults" with "Yes"
- Press the F4 key to save and exit

7.3 Redo Backup and Recovery

The instructions for Christ Redo Backup and Recovery can be found in the Download section of the Christ website: [Downloads](#)

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7.4 WebConfig

The instructions for WebConfig can be found in the Download section of the Christ website: [Downloads](#)

7.5 Enhanced Write Filter EWF

Instructions on how to set EWF and UWF filters can be found in the download section of the Christ website: [Downloads](#)

7.6 Windows drivers

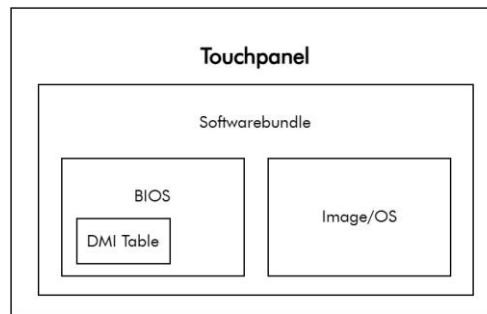
Validated Windows drivers can be found in the FAQ section of the Christ website: [FAQ](#)

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8 DMI - Desktop Management Interface

What is DMI?

The Desktop Management Interface (DMI) is a standardized procedure for identifying and managing the components of a computer. From the user's point of view, it is essentially a table provided by the BIOS from which information about the BIOS and the system can be read in a standardized manner.



You can find an overview of DMI entries here

Name DMI entry	Description	Example DMI entry
(/IVN)BIOS vendor name	BIOS manufacturer	"American Megatrends Inc."
(/IV)BIOS version	Version name of BIOS	"S1Tb-E463723-Rev1"
(/ID)BIOS release date	Release date of BIOS	"04/22/2021"
(/SM)System manufacture	Manufacturer	"Christ Electronic Systems GmbH"
(/SP)System product	"product family + housing family + display size"	"Touch Industrial PC Front Panel 12.1"
(/SV)System version	"hardware revision of the device + manufacturer date MM/YYYY"	"Rev.0-Date:05/2023"
(/SS)System Serial number	Device serial number	"1234567-000-001"
(/SU)System UUID	Unique UUID (unchanged)	"005113E1907BED 11 8535C61BB9910 700h"
(/SK)System SKU number	Device article number	"PA10012300"
(/BM)Baseboard manufacture	Baseboard manufacture	"Christ Electronic Systems GmbH"
(/BP)Baseboard product	CPU-article number + CPU-platform + processor	"PA10004296-Titanium-Intel(R) Celeron(R) 3965U"
(/BV)Baseboard version	CPU baseboard revision	"Rev.2"
(/CM)Chassis manufacture	chassis manufacture	"Christ Electronic Systems GmbH"
(/CT)Chassis type	22h > Embedded System	"22h"
(/CV)Chassis version	"housing family + display size + resolution" Exception: "Industrial PC" without display will be only "Industrial PC"	"Front Panel, 12.1 inch, 1280x800"
(/CS)Chassis Serial number	Serial number	"1234567-000-001"

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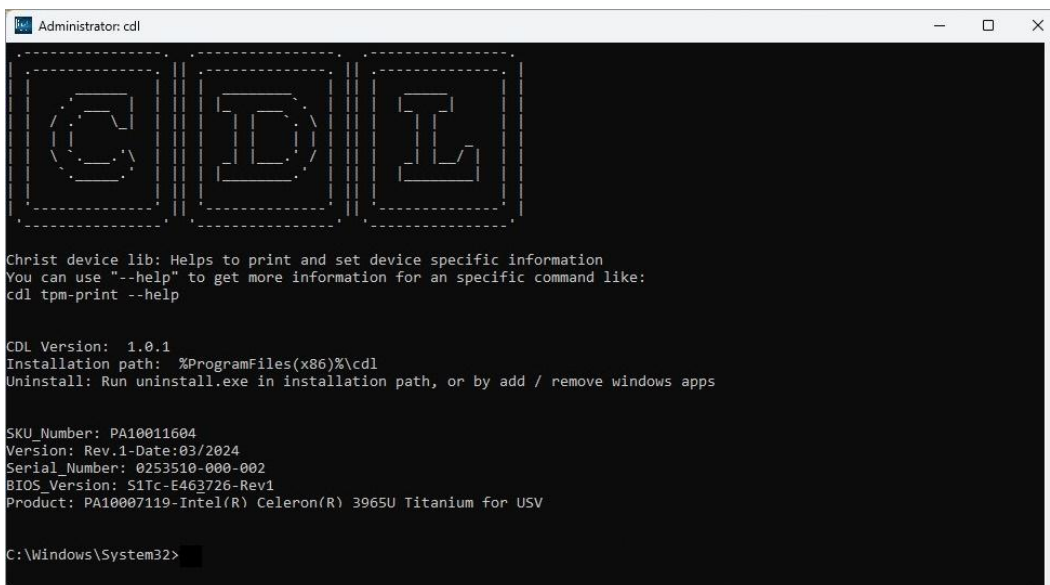
(/CSK)Chassis SKU Number	Article number	"PA10012300"
--------------------------	----------------	--------------

How can DMI entries be accessed?

The following icon is on the device's desktop:



The following DMI entries can be read by double-clicking:



Possible commands are displayed in the help:

`cdl --help`

The user manual opens automatically with this command:

`cdl show-manual`

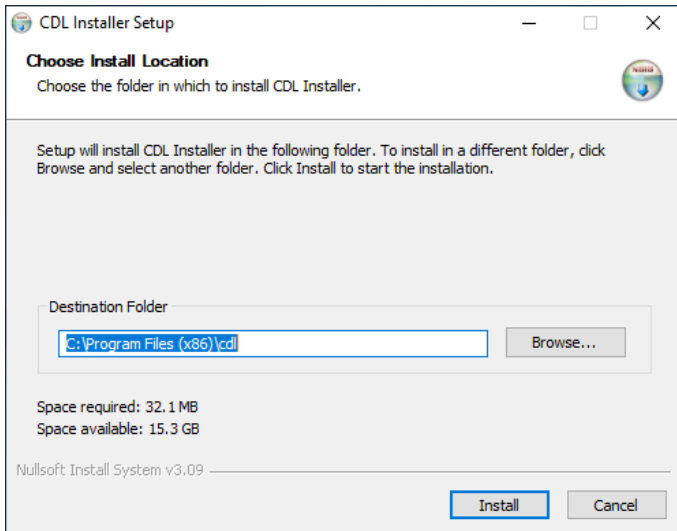
If the icon is not on the desktop, you can install it as follows:

1. Download cdlinstaller: [PA10014939 Christ Device Library - CDL](#)
2. Run the cdlinstaller.exe as administrator

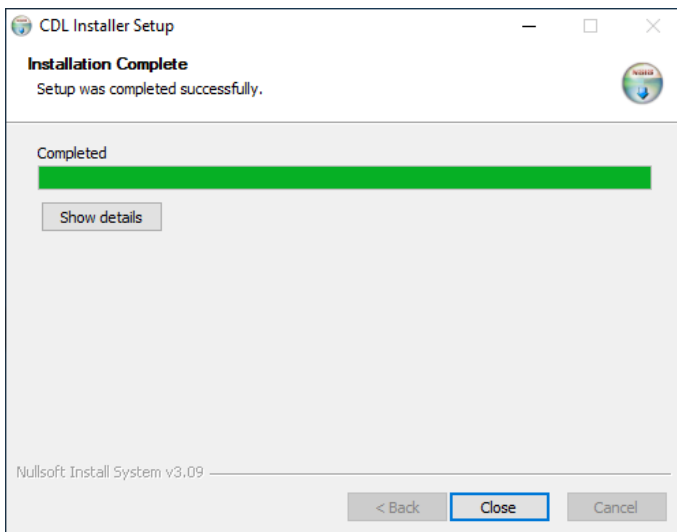


Click on "Install"

Instruction Manual: Touch Industrial PC




When the installation is complete, click "Close"



The "cdl" icon can then be found on the desktop.

To query the DMI entries in Windows, enter the following command in Windows PowerShell:
`wmic csproduct list /format`

 Administrator: Windows PowerShell (x86)


```
PS C:\Users\Christ\Desktop\cdl\e2e> wmic csproduct list /format

Description=Computer System Product
IdentifyingNumber=0253510-000-002
Name=Touch Industrial PC VESA 15.6
SKUNumber=
UUID=BE73BA80-DBD0-11EE-A1A7-36258F402901
Vendor=Christ Electronic Systems GmbH
Version=Rev.1-Date:03/2024
```


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9 Maintenance

The following chapter describes maintenance measures that can be performed by a qualified end user.

NOTICE	
	<p>Damage to the seals, damage to the housing Loss of IP protection class</p> <ul style="list-style-type: none"> ➤ There must be no permanent exposure to substances containing large amounts of oils or fats.

9.1 Cleaning

⚠ DANGER	
	<p>Triggering unintended functions Loss of control of the plant / machine / device</p> <ul style="list-style-type: none"> ➤ The appliance may only be cleaned when it is disconnected from the power supply.

To clean the device, use a soft cloth moistened with detergent solution or screen cleaner. The cleaning agent must not be applied directly to the device. Under no circumstances may aggressive solvents, chemicals or scouring agents be used.

9.2 Maintenance

It does not require any maintenance on the part of the user.

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10 Technical Data

This chapter summarizes the technical data.

10.1 Mechanical Specifications

The weight specifications are maximum guideline values. They are given in the unit kilogram [kg].

	VESA	VESA Automation	Front Panel	Open Frame
7"	tbd	--	tbd	tbd
10.1"	2.3	--	2.3	1.9
10.4"	2.3	--	2.3	1.9
12.1"	2.9	--	2.7	2.2
13.3"	3.0	tbd	2.9	2.4
15"	3.9	--	3.8	3.1
15.6"	4.0	4.8	4.0	3.3
18.5"	5.0	6.0	4.9	4.0
21.5"	6.1	7.1	5.9	4.9
24"	6.7	7.7	6.5	tbd

Table 40: Weight

When using the IP cover (IP65 on the rear), the above weight specification must be increased by the corresponding value:

VESA	0.5 kg
VESA Automation	0.6 kg

Table 41: IP65 weight

10.2 Electrical Specifications

Supply voltage	19.2 VDC ... 28.8 VDC
Power consumption	See table Power Consumption
Inrush current (load-independent)	max. 70A for 80 μ s (Used power supply: FSP060-DAAN3)
Protection class	The device complies with protection class III
Earthing	Functional Earthing (Cable cross-section has to be identical to the supply lines)
Battery lifetime	4 years (constantly turned off)


Table 42: Electrical specifications

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10.3 Power Consumption

Display size	Intel® Atom® x6211E Dual Core 1.3 / 3.0 GHz	Intel® Atom® x6425E Quad Core 2.0 / 3.0 GHz
7"	30 W	35 W
10.1"	40 W	45 W
10.4"	45 W	50 W
12.1"	50 W	50 W
13.3"	55 W	55 W
15"	50 W	55 W
15.6"	55 W	60 W
18.5"	65 W	70 W
21.5"	60 W	60 W
24"	60 W	65 W

Display size	Intel® Celeron™ 6305E 1.8 GHz	Intel® Core™ i3-1115G4E 2.2 / 3.9 GHz	Intel® Core™ i5-1145G7E 1.5 / 4.1GHz	Intel® Core™ i7-1185G7E 1.8 / 4.4 GHz
10.1"	55 W	60 W	60 W	60 W
10.4"	55 W	65 W	65 W	60 W
12.1"	60 W	65 W	70 W	65 W
13.3"	65 W	70 W	75 W	70 W
15"	60 W	70 W	70 W	65 W
15.6"	70 W	75 W	75 W	70 W
18.5"	80 W	85 W	85 W	85 W
21.5"	70 W	75 W	80 W	75 W
24"	75 W	80 W	80 W	75 W

NOTICE	
	<p>Specifications are maximum values</p> <p>Peripheral devices are considered (e.g. 1 x USB 2.0 equals 2,5 W)</p> <p>➤ Provide sufficient power</p>

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10.4 Environmental Conditions

Ambient Temperature (Standard Conditions)	0 ~ 50 °C
Ambient Temperature (Different Conditions)	0 ~ 40 °C (see device-specific datasheet)
Storage Temperature	-10 ~ 70 °C
Humidity	5 ~ 80 % (non condensing)
Protection Class (Standard Conditions)	IP65 (IP20 rear)
Protection Class (Different Conditions)	IP65 (see device-specific datasheet)
Shock Resistance (Sinusoidal Vibration)	EN 60068-2-6: 5...9 Hz at individual amplitudes of 1,5 mm 9...200 Hz constant acceleration: 30 m/s ² X, Y, Z orientations with 10 cycles (approx. 10 min)
Shock Resistance (Shock)	EN 60068-2-27 70 m/s ² , 3 times in X, Y, Z - orientations
Transportation and Storage	Suitable packaging can dampen vibrations and reduce their impact on the product.
max. Installation Altitude	2000 m
Cooling	Natural Air Convection

Table 43: Environmental Conditions

Instruction Manual: Touch Industrial PC

10.4.1 Ambient temperature

Display size	Intel® Atom® x6211E Dual Core 1.3 / 3.0 GHz	Intel® Atom® x6425E Quad Core 2.0 / 3.0 GHz
Maximum ambient temperature	50 °C	50 °C
7"	✓	✓
10.1"	✓	✓
10.4"	✓	✓
12.1"	✓	✓
13.3"	✓	✓
15"	✓	✓
15.6"	✓	✓
18.5"	✓	✓
21.5"	✓	✓
24"	✓	✓

Table 44: Ambient temperature Argon

Display size	Intel® Celeron™ 6305E 1.8 GHz	Intel® Core™ i3-1115G4E 2.2 / 3.9 GHz	Intel® Core™ i5-1145G7E 1.5 / 4.1 GHz	Intel® Core™ i7-1185G7E 1.8 / 4.4 GHz
Maximum ambient temperature	50 °C	50 °C	50 °C	50 °C
7"	✓	✓	✓	✓
10.1"	✓	✓	✓	✓
10.4"	✓	✓	✓	✓
12.1"	✓	✓	✓	✓
13.3"	✓	✓	✓	✓
15"	✓	✓	✓	✓
15.6"	✓	✓	✓	✓
18.5"	✓	✓	✓	✓
21.5"	✓	✓	✓	✓
24"	✓	✓	✓	✓

Table 45: Ambient temperature Titanium

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10.5 Temperature test

The values for ambient temperature and humidity were determined under worst-case conditions. The maximum workload of the system was achieved by the BurnInTest from PassMark Software Pty Ltd.

The test ran under 100 % utilisation of:

- CPU
- RAM
- 2D and 3D Graphic (x86 only)
- Brightness of the display

10.6 IP Protection Class


The protection class only can be guaranteed under the following conditions:

- The device is installed correctly
- All components and covers of the interfaces are assembled
- Compliance with all environmental conditions

10.7 Display Specifications

Color Depth	8 bit
Lifetime	min. 50,000 h
Viewing Angle (right/left/up/down)	min. 85°/85°/85°/85°
Backlight	LED

Table 46: Display Specifications

NOTICE	
	<p>Pixel Errors</p> <p>Due to the manufacturing process, displays may contain faulty pixels (pixel errors), which do not constitute a claim or warranty within the limits described below.</p>

The international standard ISO 9241-307:2009 defines, on an international level, the maximum permissible pixel errors in an LC-display. This standard describes different error types, in consideration of different pixel error classes.

There are the following pixel error classes, each with three different error types:

Maximum acceptable errors per 1 Mio. pixels according to ISO 9241-307:2009				
error class	error type 1 pixel constantly illuminated	error type 2 pixel constantly dark	error type 3 subpixel constantly illuminated	error type 4 subpixel constantly dark
0	0	0	0	0

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I	1	1	$n = 0 \text{ to } 2$ $2 - n$	$2 \times n + 1$
II	2	2	$n = 0 \text{ to } 5$ $5 - n$	$2 \times n$
III	5	15	max. 50	max. 50
IV	50	150	max. 150	max. 150

Why this classification of errors?

Each pixel of a display contains three subpixels which have the basic colors red, green and blue. The combination makes it possible to show a wide spectrum of colors.

Considering for example the display solution of 1280 x 800 pixels, thereof a total of 1,024000 pixels or 3,072000 subpixels are embedded in the display area. This means, the display holds 3,072000 single transistors at an area of 261.1 mm by 163.2 mm.


These figures make it clear that it is not possible to specifically produce defect-free displays even by today's manufacturing standards.

Christ Electronic Systems GmbH therefore adapts to the corresponding requirements of most international manufacturers. The displays must always comply with error class II. If the permissible number of errors of the pixel error class II is not exceeded, there is also no complainable "failure" of the display.

Referring to the calculation, the following errors can occur in the display:

- Max. 2 constantly illuminated and 2 constantly dark pixels
- Max. 5 constantly illuminated or 10 constantly dark subpixel

Avoid burn-in on displays

NOTICE	
	<p>Images that do not change</p> <p>"Image shadows", "ghost images" arise</p> <p>➤ Changing displayed images, screen saver, energy-saving mode</p>

With LC displays, so-called "ghost images" or "image shadows" can occur under certain circumstances. These are images that remain from the previous image and are felt to be "burnt into" the display. These do not remain forever. If "image shadows" occur, the device should be switched off for a longer period of time so that the burnt-in image disappears.

To avoid "ghost images" or "image shadows", the following behaviour is recommended:

- Do not display still images over an extended period of time
- Change standing images at short intervals
- Switch off the unit or use the energy-saving mode when not in use
- Use the screen saver function

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10.8 Touch Specifications

Touch technology	PCAP
Touch technology operation	Multitouch
Touch shatterproof film	No

Table 47: Touch specifications

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11 Standards and Approvals

The device meets the following requirements.

11.1 CE Marking



The device has been tested in accordance with the applicable EU directives and the associated harmonized standards.

11.2 RoHS



The device complies with the requirements of EU Directive 2011/65/EU (RoHS 2) and its amendment EU 2015/863 (RoHS 3).

11.3 Electromagnetic Compatibility

Emitted Interference	EN55032 Class A
Immunity of supply line DC	±2 kV according to IEC 61000-4-4; EFT ± 0,5 kV according to IEC 61000-4-5; Surge asymmetrical
Immunity of signal lines	±1 kV according to IEC 61000-4-4; EFT
ESD	± 4 kV Contact discharge according to EN61000-4-2 ± 8 kV Air discharge according to EN 61000-4-2
Immunity of conducted emission	3 V 150 kHz – 80 MHz, 80% AM nach IEC 61000-4-6
Immunity of high-frequency radiation	3 V/m 80 MHz – 1 GHz, 80% AM nach IEC 61000-4-3 3 V/m 1 GHz – 6 GHz, 80% AM nach IEC 61000-4-3

Table 48: Electromagnetic Compatibility

The device complies with the requirements of the EU Electromagnetic Compatibility Directive 2014/30/EU with the harmonized standards listed below:

EN 55032: 2015 Class A	Electromagnetic compatibility of multimedia equipment - Emission Requirements
EN 55035: 2017	Electromagnetic compatibility of multimedia equipment - Immunity requirements

11.4 Environmentally Appropriate Disposal

The device must not be disposed of with domestic waste.



The appliance complies with the requirement of the EU Directive WEEE 2012/19/EU, which is symbolised by the symbol with the crossed-out dustbin.

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In order to enable environmentally friendly recycling, the various materials must be separated from one another.

Disposal must be carried out in accordance with the applicable legal regulations.

Component parts	Disposal
Enclosure	Metal Recycling
Electronic	Electronics Recycling
Paper / cardboard packaging	Paper / Cardboard boxes Recycling
Plastic packing materials	Plastics Recycling

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12 Technical Support

Despite the highest quality standards and detailed function tests of all our products, damage or failure can always occur in the daily handling of our equipment. The failure of a machine in production costs a lot of money. That is why the Christ company processes complaints as quickly as possible.

You can send the device to us without prior notice. All you need to do is fill out the [repair cover letter](#) and enclose it with the touch panel or IPC so that the service department can start the repair quickly. When the device arrives, it goes through a defined process that clearly documents all processes and makes the respective status traceable. As soon as your panel or IPC is registered in our system, you will receive a confirmation of receipt so that you can also get a precise overview.

Technical Support can be contacted as follows:

Service, Repair and Technical Support

Phone: +49 8331 8371-500

Fax: +49 8331 8371-497

E-Mail: service@christ-es.de

Or directly via the Homepage.

[Christ Service](#)

12.1 Device Seal

A device seal is affixed to every Christ device in order to prove whether the device has been opened by a third party. In case of a defect, please do not open the device, but contact our service department. They will discuss the further procedure with you.

Opening the device will void the warranty.

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